InfoWorld

The Newsweekly for Microcomputer Users

December 26, 1983 Volume 4, Number 50 $1.25

Games, Gifts & Gadgets

InfoWorld Goes Window Shopping

Review of Quasar Hand-Held Computer

What's New: MAD Computer
2 Systems from Corona

51
71896 46908

"When I need words . . . I use The WORD HANDLER"

It speaks for itself!

The Word Handler is the easiest word processor around . . . also the most sophisticated. The Word Handler is a single-key command word processing program that runs without hardware modifications to your Apple®, or Apple compatible computer.

Words can't describe how much I love the Word Handler but let me tell you the Word Handler gives me unlimited tabs, incremental spacing, vertical spacing and a two character format. My Word Handler comes with a simple-to-understand manual, complete customer service and free, yes, **free** upgrades.

The Word Handler's many print features are displayed on the screen so I can see at a glance exactly what will be printed. For example: underlining, bold super^script, UPPER / lower case. Even / normal justification.

See your Apple, or Apple compatible computer dealer for sophisticated simplicity . . . The Word Handler.

Let it speak for you.

Apple is a registered trademark, of APPLE COMPUTER, INC.

CIRCLE 115

Simply the best . . .

Silicon Valley Systems

Silicon Valley Systems Inc. 1625 El Camino Real #4 Belmont, CA 94002 415-593-4344

InfoWorld
The Newsweekly for Microcomputer Users

Corona PC aggressively rivals IBM PC

By John C. Dvorak, IW Staff

LAS VEGAS, NV—What a difference a year makes to a Westlake Village, California, company with microcomputer pioneer Bob Harp at the helm.

Like a seafaring captain guiding his ship through treacherous straits, Harp has carefully maneuvered Corona Data Systems into both the stormy IBM PC marketplace and the turbulent portable-computer marketplace with the introduction of two new computers at this year's COMDEX.

Both computers are compatible with the IBM PC, and both set a new low-price standard.

The full-size desktop machine, which looks similar to the IBM PC, is appropriately dubbed the Corona PC.

The machine features half-height drives, which allows for the addition of a hard disk without sacrificing the convenience of dual floppies.

The $2595 base price includes a single 320K disk drive, 128K memory, serial and parallel ports, monitor and keyboard. The portable system with the same configuration is only $2395. Except for the different package and smaller screen, the Corona PC and the Portable PC have the same features.

Peculiar to these systems is a 110-watt power supply (IBM has 63 watts) and the ability to put 512K of main memory on the motherboard. Four additional expansion slots are available on the main board.

Another feature that distinguishes

See Corona PC, page 9

Staff walks out on *PC Magazine*, starts new journal

By Deborah Wise, IW Staff

LAS VEGAS, NV—Not all the intrigue and excitement at this year's COMDEX came from microcomputer software and hardware manufacturers.

On the opening day of the show, CW Communications, publisher of computer-related publications including *InfoWorld* and *Computerworld*, announced it had launched a new company to publish a monthly magazine for IBM Personal Computer users, called *PC World*.

The twist to the story is that *PC World* will be run by former staff members of *PC Magazine*, a year-old publication also aimed at IBM Personal Computer users.

A majority of the *PC Magazine* staff resigned two days after that publication came under the control of Ziff-Davis, Inc., a New York City publisher of computer-related publications last month. After they left *PC Magazine*, they approached Patrick J. McGovern, chairman of CW Communications, with the idea for *PC World*.

David Bunnell, who started *PC Magazine* and was its editor, was named publisher and editor-in-chief of *PC World* and president of *PC World*

See PC World, page 10

The only crazy thing about the MAD-1 is its name, says MAD's maker.

MAD impresses COMDEX

Sleek, modular MAD-1 uses Intel chip

By Paul Freiberger, IW Staff

LAS VEGAS, NV—They are calling it the MAD-1.

According to a spokesman for this new Stanford, California, company, though, the only crazy thing about the MAD Computer is its name.

Without any prepublicity and with little fanfare, the MAD-1 computer impressed attendees at the COMDEX show, who visited the MAD booth by the hundreds.

Appearing a little nervous as he gave his first press conference, Egyptian-born company president John Nafeh explained that he chose the Intel 80186 16-bit microprocessor in preparation for "a future generation of software."

The 80186 (known as the iAPX 186) is a more powerful version of the Intel 8086 family of microprocessors. The 186 allows computer designers to replace much support circuitry with a single piece of silicon.

With the announcement of an 80186-based personal computer, MAD is one of the first companies to offer the potential of the new processor at a price that is comparable with other low-cost 16-bit computers.

See MAD-1, page 11

Floppy-disk drives from Apple use new technologies

By Paul Freiberger and John Markoff, IW Staff

LAS VEGAS, NV—Apple Computer has raised the curtain a bit on its new generation of personal computers by unveiling its UniFile and DuoFile high-density floppy-disk drives for the Apple III Computer.

The disk drives use several new technologies to offer storage capacities of 871 kilobytes and 1.7 megabytes respectively.

While the Cupertino, California, computer manufacturer is still tight-lipped about the new computers that it will announce next year, the new disk drives are certain to be incorporated in those products.

Barry Yarkoni, Apple marketing manager, says that the company is "committed to format compatibility . . . and eventually when we announce it on other products, the recording format will be identical."

The new drives are designed to supplement the existing internal Apple III drive, which will be retained to maintain compatibility with existing Apple II software.

Apple has opted for a conservative approach toward increasing storage density in its new disk drives.

While other manufacturers have chosen to increase track densities up to 96 tracks per inch, the new Apple disks have track spacing of 62.5 per inch.

Bit density on each track has been

See Apple drives, page 9

COMDEX Overview

Industry embraces 16-bit microprocessors

By Paul Freiberger, John Markoff and Deborah Wise, IW Staff

Who are these people? These faces! Where do they come from? They look like caricatures of used-car dealers from Dallas. But they're real. And, sweet Jesus, there are a hell of a lot of them . . . —Hunter S. Thompson, Fear and Loathing in Las Vegas

As we sit in our Las Vegas Hilton Hotel room reflecting on the thousands of new microcomputer products packed in the nearby convention center, we feel much as Thompson did on his "savage journey to the heart of the American dream."

See COMDEX overview, page 8

INDEX

This Week 1
Telecommunications 18
I Break for Arcadians 21
In Focus 31
Views. 46
Feedback 51
Software Review. 53
Software News 56
Hardware Review 57
Hardware News 63
Classifieds 64
End of File 68

IN FOCUS

Look what they're doing with watches nowadays! They're playing arcade games on them. Electronic games and gifts of all descriptions are abundant this Christmas season. To see if anything piques your interest, please turn to page 31.

This One

WR5B-8HC-8A0L

LPMASTER.™ WHEN YOU CAN'T AFFORD TO BE WRONG.

Why not base your business decisions on data rather than intuition from now on? You could hire a Harvard MBA to help or—LPMASTER. LPMASTER has evolved from the popular managamant science tool of linear programming. LPMASTER is a powerful decision-making tool which allows you to create a mathamatical model of your entire company within minutes.

This Linear Programming model can be used for a wide variety of purposes:

- Determine the bottom line
- Optimize Operations
- Allocate Scarce Resources
- Minimize Capital Expenditures
- Maximize Profits
- Explore Marginal Alternatives
- Present Finished Reports

Every run of LPMASTER yields optimum levels of all operating variables while a given objective is met—usually to maximize profit. LPMASTER is more sophisticated than simple "spreadsheet" arithmetic and aids the manager in optimizing an activity while under restrictive conditions.

LPMASTER was developed for a manager or company decision-maker, not a computer expert. And there is no need for the Harvard MBA. The user is isolated from the technicality of linear programming by the software advances of LPMASTER.

Give your decisions the credibility of linear programming with LPMASTER, $495.

LPMASTER

LPMASTER requires CP/M® or MS-DOS™ operating system, 64K of memory and 2 disk drives. It is available in most popular microcomputer formats. For more information contact your local computer dealer or Digital Marketing.

LPMASTER is a trademark of Applied Operations Research, Inc. CP/M is a registered trademark of Digital Research, Inc. MS-DOS is a trademark of MicroSoft

SOFTWARE SOFTWARE DIGITAL MARKETING DIGITAL MARKETING

DIGITAL MARKETING CORPORATION

20 TECHNOLOGY • IRVINE • CALIFORNIA • 92618
(714) 770-3980 • Telex 111882 (DIGMARTG IRVC)

Dealer Inquiries Invited. Dealers outside California call (800) 422-0844 Inside California call (714) 770-3980

InfoWorld

The Newsweekly for Microcomputer Users

Editor-in-Chief
Maggie Canon

Managing Editor
John Barry

Editor
John C. Dvorak

Senior Editors, West Coast
Paul Freiberger, John Markoff, Michael Swaine

Senior Editors, East Coast
David Needle, Deborah Wise

Senior Writers
Katherine Chin
Scott Mace

Copy Editors
Eva Hogan, Tanya Kucak, Tom Shea, Patricia Sinervo

Hardware/Software Review Coordinator
Barbara Wierzbicki

Contributing Editors
Roger Carrick, Guy Kewney, Alan Stein, John Zussman

Editorial Assistant
Marjorie Gae Brandon

Advertising Director
Roger A. Leen

Advertising Marketing Manager
Robert A. David

National Advertising Coordinator
Bobby Brown

Classified Advertising Manager
Laura Larson

Classified Advertising Coordinator
Delia Daniels

Advertising Assistant
Anquinette Flemmings

Advertising Billing Clerk
Grace Duarte

Production Manager
Kent W. Hutchings

Production Coordinator
Cynthia Puig

Typesetting Supervisor
Camille Page Massey

Advertising Production Supervisor
Lauren Katz Tinsley

Paste-up Supervisor
Sahnta Pannutti

Production Assistant
Leah Dansby

Production
Lynne Stevens, Rachel Wasser

Typesetters
Marilyn Lombardi, Ellen Markoff

Marketing Consultant
Bill Prendergast

Circulation Marketing Manager
Nancy Perroton

Administration
Sheryl Heaney, Joni Lincicome

Administrative Manager
Theresa A. Williams

Publication Manager
James Regier

InfoWorld Advertising Representatives

Northwest
InfoWorld, 530 Lytton Ave., Suite 303, Palo Alto, CA 94301 (415) 665-1330
Salesperson: Lynne Matthes
Territory covers: Northern CA OR WA AK NV UT WY ID MT HI Canada

Southwest
InfoWorld, 1901 Ave. of the Stars, Suite 1774, Los Angeles, CA 90067 (213) 552-0408
Salesperson: Gary Carter
Territory covers: Southern CA AZ NM TX

Midwest
Dwight Early & Sons, 405 N. Wabash #1514, Chicago, IL 60611 (312) 644-6400
Salesperson: Gordon Early, Robert Deming
Territory covers: KS OK MO IA MN WI IL KY MI OH NE

New England
Mitch Hall Associates, P.O. Box 860, 1200 East St., Westwood, MA 02090 (617) 329-8092
Salesperson: Terri Hamilton
Territory covers: ME NH RI MA VT CT

New York New Jersey
Target Media Company, 114 E. Main St., Bogota, NJ 07603 (201) 488-7900
Salesperson: Robert A. D'Ambrosio, Steven Branda

Mid-Atlantic Southeast
Warren Langer Associates, 1349 N.W. 84th Dr., Coral Springs, FL 33065 (305) 753-4124
Salesperson: Warren Langer
Territory covers: PA DE MD Washington, D.C. VA NC SC FL GA AL LA MS WV TN

Mid-Central
InfoWorld, 530 Lytton Avenue, Suite 303, Palo Alto, CA 94301 (415) 328-4602
Salesperson: Laura Larson
Territory covers: ND SD TX OK AR

Rapid-Access Marketplace: (415) 328-4602
Classified Advertising: (415) 328-4602

Second-class postage paid at Framingham, MA, and additional mailing offices. PS 523670. InfoWorld (ISSN 0199-6649) is published weekly except for a single combined issue the first two weeks of January by Popular Computing, Inc., 375 Cochituate Road, Box 880, Framingham, MA 01701. Copyright 1982 by Popular Computing, Inc. All rights reserved. Reproduction of material appearing in InfoWorld is forbidden without written permission. Send all requests to Terri Williams, InfoWorld, 530 Lytton Avenue, Palo Alto, CA 94301. InfoWorld will supply camera-ready art for a nominal charge. Single copy price: $1.25. Subscription prices: 1 yr—$25 a year, Canada, Central and South America—$65 a year, Europe—$85 a year. All other countries—$145 a year. Four weeks notice is required for change of address. Please allow six weeks for new subscription service to begin. InfoWorld can be purchased on 35-mm microfilm through University Microfilm, Periodical Entry Dept., 300 North Zeeb Road, Ann Arbor, MI 48106. (313) 761-4700.
SUBSCRIPTION TITLE: INFO LINE. (800) 343-6474. MASS ISSN 0177-0780. Address all subscription inquiries to InfoWorld, 375 Cochituate Road, Box 880, Framingham, MA 01701. Address all editorial correspondence to Editor, InfoWorld, 530 Lytton Avenue, Palo Alto, CA 94301. POSTMASTER: Send form 3579 Change of Address to InfoWorld, 375 Cochituate Road, Box 880, Framingham, MA 01701

Member, Audit Bureau of Circulations

ABC

Cover: Photograph by Alan Gael

Copyright © 1982 *Popular Computing, Inc.*
All rights reserved.

INFOWORLD Headquarters:
530 Lytton, Palo Alto, CA 94301
(415) 328-4602

Telex: 176072
(InfoWorld PLA)

#1 with Words. A+ with Numbers.

Spellbinder Word Processing and Office Management Software.

Spellbinder processes words *and* numbers. So you save time and improve accuracy in any document: Financial statements. Budgets. Reports. Invoices.

Spellbinder lines up columns of numbers for faster data entry; calculates rows and columns; and puts the totals where you want them.

Spellbinder performs a number of mathematical functions, such as addition, subtraction, and multiplication; extends figures (for example, *6 dictionaries @ $12.35 = $74.10*); adds tax to invoices; and displays convenient reference tables.

You can edit numbers within a column, or move a column to a different location. Spellbinder's integrated forms handler saves time and manpower on multiple invoices, reports, and other documents.

The software for discriminating users. Whether you process numbers or words, you'll appreciate Spellbinder's unrivalled ease-of-use and superior capabilities. Spellbinder and an inexpensive microcomputer easily outperform *dedicated* word processing systems costing *up to three times* more.

IBM is a registered trademark of IBM Corporation.

Spellbinder features flexible printing options; mass mailing and legal text capabilities; plus forms handler and boiler plate features for commonly used documents.

Spellbinder makes word processing much easier, much faster, and much less expensive. In fact, many of our users convert from some of the better known (and more costly) systems.

You should be just as discriminating. See your nearest dealer for a demonstration of Spellbinder. Or call Lexisoft at (916) 758-3630.

Now available in 8086 and IBM® Personal Computer format.

Spellbinder™

Spellbinder Word Processing and Office Management System.

A product of Lexisoft, Inc.
Box 267, Davis, CA 95616 □ (916) 758-3630

IF YOU KNOW WHAT YOU WANT . . .

WORDSTAR $242 | **SUPERCALC $185** | **CONDOR 3 $719** | **WORD HANDLER $145** | **VISICALC $169**

Personal Data Base $93 • PFS $79 • PFS Report $66 • PFS Graph $79

CROSSTALK $119 | **EASYWRITER II $259** | **MULTIPLAN $179** | **DB MASTER $145** | **FINAL WORD $223**

IBM PC*

	List	New
American Training International, Inc		
ATI-Power for PC DOS	75	56
Applied Software Technology		
Versaform	389	288
Ashton-Tate		
dBase II	700	425
Aspen Software		
Grammatik	150	112
Proofreader	129	97
Both	250	187
Byrom Software		
BSTAM (Micro to micro comm)	200	149
BSTMS (Micro to mainframe comm)	200	149
Comshere		
Master Planner	325	253
Condor Computer Corp.		
Condor I	295	219
Condor II	595	429
Condor III	995	710
Condor 20-Q (an indexing feature)	195	145
Condor 20-R (report writer module)	295	212
Continental Software		
Home Accountant Plus	150	112
1st Class Mail	125	98
DataMost		
Write On	130	94
Real Estate Investment Program	130	95
Denver Software		
EASy (Executive Acctg System)	725	539
Digital Research		
Concurrent CP/M-86	350	294
Level 2 COBOL 86	1600	1200
Pascal MT+86	600	468
SID86	150	94
SPP86	200	168
Eagle Software		
Money Decisions	195	146
Howard		
Real Estate Analyzer II	250	187
Innovative Software		
T I M III	495	357
ISA (Sorcim)		
Spellguard	195	146
Superwriter	395	249
ISM		
MatheMagic	90	65
Graphmagic	90	65
Combo Pack	150	111
IUS		
Easy Speller	175	124
Easy Filer	400	281
Easywriter II	350	259
Easy Planner	195	134
Lexisoft		
Spellbinder	495	281
Lifeboat		
Lattice C Compiler	500	415
Lifetree		
Volkswriter	195	147
Mark of the Unicorn		
Mince	175	153
Final Word	300	223
Metasoft		
Benchmark Word Processor*	500	367
Benchmark Mail list	250	183
Microfocus		
CIS COBOL 8086	850	637
Micro Lab		
The Tax Manager	250	169
MicroPro		
Wordstar	495	242
Spellstar	250	135
Mailmerge	250	127
Wordstar/Mailmerge		359
Microsoft		
Multiplan	275	214
MicroStuf		
CrossTalk	195	119
Northwest Analytical		
Statpak	495	369
OASIS		
The Word Plus	150	112
Organic Software		
Datebook	395	331
Milestone (128K)	395	331
Textwriter III (Text formatter)	125	97
PBL Corporation		
Personal Investor (128K)	145	105
Peachtree		
Series 4 Peachpak (GL/AR/AP)	595	298
Perfect Software		
Perfect Writer	489	199
Perfect Speller	295	119
Both	784	318
Select Information Systems		
Select with SuperSpell (Word Proc)	595	369
Sorcim (see also ISA)		
Supercalc	295	185
Star		
Legal Timekeeping, Billing, & Accts	950	740
Supersoft		
Optimizer	200	140
Versa Computing		
Graphics Hardcopy System	25	19
VisiCorp		
VisiCalc (256K)	250	169
Desktop Plan I	300	229
VisiTrend/Plot	300	215
Visidex	250	189
VisiFile	300	229
Visischedule	300	234
Business Forecasting Models	100	78
Woolf Software Systems		
Move It	150	99

IBM PC* GAMES

	List	New
Acorn Software		
Lost Colony	30	22
Automated Simulations/EPYX		
Temple of Apshai	40	30
Upper Reaches of Apshai	20	15
Curse of Ra	20	15
Avalon Hill		
Galaxy	25	19
Midway Campaign	21	16
Computer Stocks and Bonds	25	19
Voyager	25	19
Draw Poker	21	16
Andromeda Conquest	23	17
BlueChip		
Millionaire	100	75
Broderbund Software		
Apple Panic	30	22
Cavalier Computer		
Championship Blackjack	40	30
DataMost		
Pig Pen	30	22
Space Strike	30	22
Infocom		
Deadline	50	37
Zork I, II, III (ea)	40	30
Starcross	40	30
Omric Corporation		
Space Guardian	30	22
OnLine Systems		
Frogger	35	26
Crossfire	30	22
Hi-Res #4 Ulysses	40	29
Sirius Software		
Conquest (Call to Arms)	30	22
Strategic Simulations		
The Warp Factor	40	30

CP/M* 8"

	List	New
Adventure International		
Adventures (#1-12)	129	97
American Training International, Inc.		
ATI-Power for CP/M	75	54
Artificial Intelligence (Requires CBASIC 2)		
Medical	995	749
Dental	995	749
Ashton Tate		
dBase II	700	425
Aspen Software		
Grammatik	150	112
Proofreader	129	97
Both	250	187
Balcones		
The Boss Financial Accounting System	2495	1496
Byrom Software		
BSTAM (Micro to micro comm)	200	144
BSTMS (Micro to mainframe comm)	200	144
Caxton		
Cardbox	245	177
Cenia Systems		
CP/M S* Northstar (Horizon only)	179	150
CP/M S* Micropolis	189	156
Computer Control		
FABS (B-TREE file access)	195	146
Ultrasort II	195	146
Computer Development, Inc.		
Image	495	356
Comshare Target Software		
Plannercalc	50	38
Masterplanner	325	263
Condor Computer Corp.		
Condor I	295	219
Condor II	595	429
Condor III	995	719
Condor 20-R (report writer module)	295	212
Condor 20-Q (an indexing feature)	195	140
Designer Software		
Palantir	425	306
Digital Research		
MAC (macro assembler)	90	75
SID (symbolic debugger for 8080)	75	63
CBASIC (language)	150	94
CB80	500	400
Pascal Mt+ version 5.5 W/SPP (requires 56K)	500	399
Ecosoft		
MicroStat (stat package)	295	248
Epic Computer Corp.		
Supervyz	150	94
Faircom		
MICRO B+ (Keyed file accessing)		
For CBASIC 2	260	211
For MBASIC, COBOL, PL1/80, FORTRAN, Pascal MT+, CB 80	260	211
Fox and Geller		
Quickscreen	149	125
Quickcode	295	195
dUTIL	99	59
FYI		
Superfile	195	129
Infocom		
Deadline	60	43
Zork I, II, III (ea)	50	38
Star Cross	50	38
ISA (Sorcim)		
Spellguard	195	146
Superwriter	395	249
Peachtree		
Series 4 Peach Pak (GL, AR, AP)	595	298
Perfect Software		
Perfect Speller	295	139
Perfect Calc	295	142
Perfect Filer	595	279
Perfect Writer	489	235
Pickles and Trout		
CP/M TRS 80 Mod II	185	169
Quality Software		
GBS-DB Apple Dev Program	650	505
Relational Systems, Int.		
Personal Pearl	295	184
Select Information Systems		
Select with Superspell	595	369
Sorcim (see also ISA)		
Pascal/M (Z80 or 8080)	395	284
Pascal/M (8086, 8088)	405	356
ACT 80 (Z80, 8080, 8085)	175	126
ACT 65 (6502)	175	126
ACT 68 (6800)	175	126
ACT 69 (6809)	175	126
ACT 86/88 (8086, 8088)	175	126
TRANS 86	125	90
SuperCalc	295	185
Supersoft		
CCompiler	250	188
Ada Compiler	300	225
Personal DataBase	125	93

dBASE Corner

- dBASE II (relational DBMS) ... $425
- Quickcode (program generator) ... $195
- dUTIL (programmer's utilities) ... $59
- ABSTAT (statistics package) .. $359

Technical questions, M-F/9-5 (415) 493-6597

	List	New
ISM		
Mathemagic	99	72
Ithaca Intersystems		
Pascal Z	450	375
Pascal BZ (84K)	450	375
Pascal Z and BZ	650	542
Lexisoft		
Spellbinder	495	281
Lifeboat		
T-Maker II	275	215
Mark of the Unicorn		
Mince (text editor)	200	136
Final Word	300	229
Micro Pro		
Wordstar	495	242
MailMerge	250	127
Wordstar/MailMerge		359
Spellstar	250	127
Wordstar/Spellstar	695	359
Word/Spell/Mail	845	422
Calcstar	145	99
Datastar	295	178
Supersort	250	127
MicroSoft		
BASIC 80	350	252
BASIC Compiler	395	284
FORTRAN 80	500	360
COBOL 80	750	540
MACRO 80	200	156
EDIT 80	120	94
μ Math/μ Simp	250	194
μ LISP/μ Star	200	156
M-Sort	195	151
Multiplan	275	170
Microstuf		
CrossTalk	195	119
Northwest Analytical		
Statpak	495	369
OASIS		
The Word Plus	150	112
Organic Software		
Datebook	295	229
Milestone	295	229
Systems Plus/SW Dimensions		
Accounting Plus**		
GL, AR, AP, Inv each		402
All four		1435
Woolf Software Systems		
Move it	100	66

Other CP/M formats are generally the same price, but please call to confirm.

APPLE ///

	List	New
Applied Software Technology		
Versa Form VS-3	495	371
DataMost		
Write On	130	99
Denver Software		
EASy (Executive Accounting System)	725	562
Insoft		
TransForth ///	125	94
ALD System ///	75	56
Link Systems		
Link Index	195	146
Link Video	55	42
Link Sampler I	60	45
Datalax	249	187
Datalink	149	112
Micro Lab		
Data Manager ///	750	562
Software Publishing Corp.		
PFS	175	120
PFS Report	125	86
PFS Graph	175	120
VisiCorp		
Desktop Plan ///	300	234
Visischedule ///	300	234
Visicalc Advanced III	400	312
Business Forecasting Model	100	78

IBM PC* HARDWARE

	List	New
Kraft		
Joystick	70	52
Paddle	50	37
Microsoft		
RAM Card 64K	350	253
RAM Card 128K	525	381
RAM Card 192K	700	508
RAM Card 256K	875	634
STB		
64K RAM	329	246
192K RAM	599	439
64K Multifunction	599	439
192K Multifunction	869	629
Tech Designs		
Adam & Eve Paddles	40	27
TG Products		
Joystick	59	43
Versa Computing		
VersaWriter Graphics Tablet	299	240

APPLE* GAMES

	List	New
Broderbund		
Star Blazer	32	24
Choplifter	35	26
David's Midnight Magic	35	26
DataMost		
Snack Attack	30	23
Muse		
Castle Wolfenstein	30	23
OnLine		
Cannonball Blitz	35	26
Time Zone	100	69
Jawbreaker	30	21
Sirius		
Kabul Spy	35	26
Sirtech		
Knight of Diamonds	35	26
Wizardry	50	35

Call for More Games

HARDWARE

	List	New
Hayes Microcomputer Products		
Datacom Pascal Package	50	36
Hayes Stack Chronograph (RS-232)	249	199
Hayes Stack Smart-Modem (RS-232) 300 Baud	279	209
Hayes Stack Smart-Modem (RS-232) 1200 Baud	699	509
NEC		
12" Green Hi-Res CRT	285	167

WE'LL MATCH ANY ADVERTISED PRICE

APPLE* BUSINESS

	List	New
Applied Software Technology		
Versa Form		
VS-1 Apple II/64K	389	249
VH-1 (Corvus)	495	360
VP-1 Versaform Pascal/Interface	245	180
ARTSCI (Softape)		
Magic Window	150	99
Magic Mailer	70	49
Magic Words	70	49
Magic Pack Combo (Contains all 3)	225	156
Ashton-Tate		
dBase II	700	425
Broderbund Software		
General Ledger (with A/P)	495	305
Payroll	395	275
Comshare Target Software		
Target PlannerCalc	50	36
Image Maker	175	126
Continental		
Home Accountant	75	52
The Home Money Minder	35	25
The Mailroom	35	25
1st Class Mail	75	54
CPA #1 — GL	250	159
CPA #2 — AR	250	159
CPA #3 — AP	250	159
CPA #4 — PR	250	159
All four	1000	609
CPA #5 — Property Management	495	352
Datamost		
Write On II	130	90
Real Estate Analysis Program	130	90
Tax Beater	130	90
Decision Support		
The Accountant	129	97
Accountant with DBCalc	149	107
Hayden Software		
Assembly Language Development System	40	30
Applesoft Compiler 3.3	175	126
Pie Writer/Standard	150	108
Pie Writer/Double Vision	150	108
Pie Writer/Multi 80-col	150	108
Howard Software		
Creative Financing	195	149
State Tax Prep CA/IL/NY/NJ	75	57
Tax Preparer 1982	150	112
Real Estate Analyzer II	195	125
Information Unlimited Software (IUS)		
Datadex	150	108
Datadex/Hard Disk	300	216
Professional Easywriter	175	126
Professional Easymailer	150	108
Original Easywriter	100	72
Original Easymailer	70	50
Easy Mover	100	72
Tellstar Level I	40	30
Tellstar Level II	80	58
FORTH Development System	140	101
ISA (Sorcim)		
Spellguard	295	212
Kensington Microware Ltd.		
Format II	250	169
Micro Lab		
The Invoice Factory	200	144
The Merger	50	37
The Learning System	150	108
Painter Power	40	30
US Constitution Tutor	30	22
English SAT #1	30	22
VisiBlend	50	37
VisiFactory	75	54
The Asset Manager	200	144
The Tax Manager	150	108
Data Factory 5.0	300	216
Wall Streeter	300	216
Payroll Manager	300	216
Micropro		
Wordstar	495	179
Wordstar Customization Notes	500	300
MailMerge	250	125
Wordstar/Mailmerge	645	300
SuperSort	250	120
SpellStar	250	108
DataStar	295	140
CalcStar	145	108
Microsoft		
FORTRAN 80	195	151
COBOL 80	750	584
BASIC Compiler	395	295
TASC (Applesoft compiler)	175	119
Typing Tutor II	25	19
Time Manager	150	116
A L D S	125	97
Adios μMath-80	125	97
Adios μMath/μSimp	250	194
M-Sort	195	151
μLisp/μStar	200	156
Multiplan	275	179
MUSE		
Supertext 40/80	175	126
Form Letter Module 48K	100	72
Address Book Mailing List 48K**	50	36
Data Plot 48K**	60	43
Elementary Math Applesoft 48K**	40	29
The Voice 48K	40	29
**Requires Applesoft ROM or Apple II Plus		
Oasis		
The Word Plus	150	112
On-Line Systems		
The General Manager (new)	230	[illegible]
Screenwriter II	130	[illegible]
The Dictionary	100	[illegible]
Expeditor II+ (Applesoft compiler)	135	[illegible]
LISA 2.5	80	[illegible]
EPFIV (Extended Programming Facility IV)	80	[illegible]
LISA Educational Package	120	[illegible]
MMSII (Memory Management System)	50	[illegible]
Select Information Systems		
Select (with Superspell)	595	[illegible]
Silicon Valley		
Word Handler	199	[illegible]
Sirrus		
Pascal Graphics Editor (48K II/II+)	100	[illegible]
Sol/Sys, Inc.		
Executive Secretary	250	[illegible]
Executive Speller	75	[illegible]
Softech Microsystems		
UCSD P-System Software Set	625	[illegible]
BASIC Compiler and Runtime Package	225	[illegible]
Xenofile	50	[illegible]
Softeach	125	[illegible]
Software Publishing		
PFS (New)	125	[illegible]
PFS/Report (New)	95	[illegible]
PFS/Graph	125	[illegible]
Sorcim (see ISA)		
SuperCalc	295	[illegible]
Southeastern Software		
Data Capture 4.0	65	[illegible]
Data Capture 4.0/Videx, Smarterm, Superterm	90	[illegible]
Stoneware		
DBMaster	229	[illegible]
Utility Pak #1	99	[illegible]
Utility Pak #2	99	[illegible]
DBMaster/Hard Disk	499	[illegible]
Stat Pac	99	[illegible]
Micro Memo	40	[illegible]
Electronic Price Sheet	100	[illegible]
Compucube	30	[illegible]
Graphics Processing System (Standard)	60	[illegible]
Graphics Processing System (Professional)	100	[illegible]
Systems Plus		
Accounting Plus**		
GL, AR, AP, Inv ea	395	[illegible]
All four	1250	[illegible]
Versa Computing		
VersaWriter Expansion Pac-I	40	[illegible]
VersaWriter Expansion Pac-II	40	[illegible]
AXE (Apple Extended Editor)	70	[illegible]
VersaWriter Graphics Tablet (accessory)	299	[illegible]
VisiCorp (Personal Software)		
VisiCalc II 3.3	250	[illegible]
VisiFile	250	[illegible]
Desktop Plan II	250	[illegible]
Desktop Plan III	300	[illegible]
VisiPlot	200	[illegible]
VisiTrend/VisiPlot	300	[illegible]
VisiDex	250	[illegible]
VisiTerm	100	[illegible]
VisiSchedule	300	[illegible]
VisiPak	700	[illegible]
Business Forecasting Model (req. VisiCalc)	100	[illegible]

APPLE* HARDWARE

	List	New
Hayes		
Micromodem II	379	[illegible]
Kensington		
System Saver (Fan)	90	[illegible]
Micro-Sci		
A2 35T Disk Drive	479	[illegible]
Microsoft		
RAMcard (memory board)	195	[illegible]
Softcard (CP/M board)	345	[illegible]
Premium System: Softcard, 16K RAMcard, Videx Videoterm 80 col. Card, Softswitch, Osborne CP/M User Guide	695	[illegible]
Personal Computer		
Appli-Card (6MHz)	595	[illegible]
Videx		
Keyboard Enhancer II	140	[illegible]
Videoterm w/Soft-Switch	375	[illegible]

* :Manufacturer's trademark **Accounting Plus is a trademark of Softwara Dimensions Inc

24 HOUR ORDER LINES
Nationwide: **(800) 222-8811**
California: **(415) 494-2516**

Important: *If Ma Bell doesn't have the 800 number working, please use the 415 number*

These lines are manned 8-6 Monday thru Saturday and usually outside business hours as well

INQUIRIES/PRICE QUOTES
(415) 494-2589

PROGRAMMING INTERNATIONAL
3333 Bowers Ave. • Suite 130
Santa Clara, CA 95054

MORE CP/M*, APPLE*, IBM PC*, UNIX*, UCSD p-System* software, hardware, etc. send $2.00 (refundable) for price list or call for quota

TERMS: All prices subject to change without notice and availability. Cashier's check/MO/bank transfer. Allow time for company or personal checks to clear. Prices reflect cash prepaid discount. VISA/MASTERCARD/COD + 3%. CA residents add sales tax

SHIPPING: $2 per item for UPS surface ($6 for Blue Label) within continental USA, except where shipping cost is specified in square brackets

WHY PAY MORE?

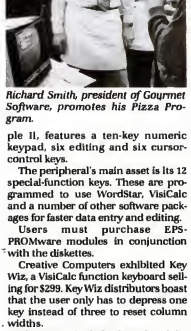
Applefest/San Francisco

By Kathy Chin and Scott Mace, IW Staff

An estimated 26,342 technical experts, computer junkies and potential users attending Applefest/San Francisco last month were exposed to what the 200-plus companies referred to as their "latest, newest, first, only, one-of-a-kind" wares.

Wide-eyed novices to sleepy-eyed, well-read computerists gleamed over this show's trendy focus on Apple aids from businesses such as Executive Peripheral Systems (EPS) in Palo Alto, California; Osmosis in San Francisco; Creative Computer in Forked River, New Jersey; and Millenium 3 Engineering in Westwood, California.

EPS unveiled its new detachable keyboard at the show. The $399.95 keyboard, which plugs right into the Apple II, features a ten-key numeric keypad, six editing and six cursor-control keys.



Richard Smith, president of Gourmet Software, promotes his Pizza Program.

The peripheral's main asset is its 12 special-function keys. These are programmed to use WordStar, VisiCalc and a number of other software packages for faster data entry and editing.

Users must purchase EPS-PROMware modules in conjunction with the diskettes.

Creative Computers exhibited Key Wiz, a VisiCalc function keyboard selling for $299. Key Wiz distributors boast that the user only has to depress one key instead of three to reset column widths.

The 12 × 6-inch keyboard weighs less than three pounds. Key Wiz contains a 19-key numeric keypad and 30 VisiCalc commands.

Osmosis introduced Osmosis Manual II and Osmosis Programmable Manual II, each a barstrip of 16 keys that fits horizontally above the keyboard.

128 characters per key

The keys on the Manual II, priced at $135, provide 32 separate functions for WordStar or VisiCalc. Each key on the $195 Programmable can produce up to 128 characters.

Analytical Engines (AE), based in Austin, Texas, displayed Saybrook, a peripheral card designed to increase Apple II memory to 128K.

According to AE, the card boosts computational capability to 10 to 20 times the speed of Apple II, III or the IBM Personal Computer.

For $995 per card, users receive the UCSD p-System Plus Version IV. The Saybrook card has 128K RAM, expandable to 256K, and a time clock.

Millenium 3 Engineering introduced the Arcade Board, a peripheral that supplies entertainment by generating color graphics, sound effects and music. Using the TMS 9918A video-display processor and General Instruments AY3-8912 programmable sound generator, the board features 16 colors, multiplanar graphics and table-driven graphics to allow differ-

See Applefest, page 6

Applefest/San Francisco attracted more than 20,000 Apple devotees.

"SELECT™ MANAGES THE BUSINESS. I JUST REAP THE HARVEST."

(**Richard Russell,** Gentleman Farmer)

Nebraska soybeans are Richard Russell's business. But he rarely gets there. Richard manages his farms from a Victorian flat in San Francisco. And he does it with little more than a telephone and the SELECT Word Processor.

SELECT supports his interests as efficiently and often more quickly than could a well-run office back home. The briefest bank instruction or thickest annual report can be recorded in minutes and retrieved in seconds.

And SELECT is a great bargain. It includes a huge spelling dictionary to proof and correct typing; an efficient and flexible merge print feature to personalize letters and maintain mailing lists. Best of all, SELECT starts you off right with TEACH,* the remarkable video tutorial that teaches you how to use SELECT right at your own computer screen in 90 minutes or less. All these features are combined in one package for one low price. You won't need additional software.

Have your computer dealer show you SELECT. Ask to take TEACH. The minute you do, he'll know you didn't just fall off a turnip truck. And neither did Richard Russell.

SELECT...The Word Processing People ™

SELECT INFORMATION SYSTEMS, INC.
919 Sir Francis Drake Boulevard, Kentfield, California, 94904 • (415) 459-4003

* SELECT and TEACH are trademarks of Select Information Systems Inc

Applefest gorilla calls on Micro Mother Goose at the San Francisco convention.

Applefest

continued from preceding page

ent types of animation.

Micron Technology of Boise, Idaho, introduced a photo digitizing system that uses a 64K dynamic RAM chip as an imaging element. According to Carl Baker of Micron, the system focuses light, using a standard TV camera lens, onto a RAM chip with more than 65,000 light-sensitive cells. The cells convert the incoming light into a bit-mapped image that can be stored or displayed on the Apple II.

Baker said the system can be used for optical character recognition or digitized mapping, although it reproduces blacks and whites only, not gray scales. Micron supplies the hardware and software for $450 retail, which includes a custom card for one of the Apple's slots, a serial interface plus special software for Apple Pascal or Applesoft BASIC. Micron, itself a manufacturer of 64K dynamic RAM chips, is preparing interfaces for the IBM PC and the Radio Shack Color Computer.

Applefest exhibitors maintained the atmosphere of a full-fledged carnival, and kids flocked to the video games.

One such game was The Desecration, from Mind Games of Beverly Hills, California. The first in a series of "adventurecades," the game combines adventure themes with the action of arcade games.

The player, also known as Intergalactic Assassin, must save the Dendoron Galaxy from the parasitic desecration of the Pykronian Empire. The players must escape the crossfire of the Android patrol while dodging the bombs of the Pykronian Air Command.

Of course, no fair is a real fair without food.

Richard Smith, president of Gourmet Software, attracted attention to his company's Pizza Program. Smith explained that the software package contains a data base that includes food groups, shopping lists and menu plans for impatient homemakers and busy bachelors.

According to Smith, Pizza Program is Gourmet Software's first product. It was developed ten years ago by an engineer who designed the program at the request of his wife. Since then, the package has been tested and refined.

"We expanded the idea of ten years ago," he said. "It's ten times better and does everything but the dishes."

Those who are on diets can turn to Health Aide, prepared by Robert Etheredge, president of Knossos in Corte Madera, California.

For $59.95, the package includes two disks, a user guide/reference manual and reference cards. The diet planner allows users to determine daily calorie needs as well as exercise requirements.

Computerized soothsayer

In accord with the carnival theme, users lined up to have their fortunes told by Madame Shepp. Shepp is not a woman, but a program designed by G.V.S.T. of Mill Valley, California. When spectators punch in questions regarding romance, money or anything else, the computerized soothsayer uses tarot cards to reveal the unknown. The disk retails in computer stores for $50.

Exhibitors successfully used attention-getting devices such as a mime, gorilla and a girl wearing a sandwich board. If an organ-grinder and a computerized monkey had been on hand, the carnival scenario would have been complete. ■

Apple Polishing.

New software for your Apple* III. Only from Quark.

Now you can add three **new** Quark software products to your Apple III.

Advanced programs which offer you the technical sophistication you need. With the simplicity of operation you want. All at intelligent prices.

Case-in-point: Catalyst™. With this hard disk program, you'll only have to boot your system once. Which means you may not have to touch another floppy disk all day. And the price, to coin a phrase, is user-friendly. Only $149.

You'll also be delighted with Discourse™. A spooler that saves you a lot of time. Because it lets you use your computer while you're printing other reports. Plus, you can queue up to 14 documents. The price is $125.

And if you need an automated appointment calendar, the answer is Quark's new Vigil™. No matter what your Apple III is doing, Vigil will alert you to the next event on your busy schedule. The price is attention-getting, too. Just $95.

Your dealer wants to show you these exciting new programs today. And while you're there, be sure to ask for our free brochure: Apple Polishing.

Or write us directly.

You'll discover how to put Quark's unique line of software to work for you. And then your Apple III can really shine.

* Apple is a registered trademark of Apple Computer, Inc.

Quark™

1433 Williams, Suite 1102 Denver, CO 80218
(303) 399-1096

CP/M® IBM® APPLE® PRICE WAR!

WordStar®	dBASE II™	SuperCalc™	Perfect Writer™
$249	$489	$189	$249
WordStar®/MailMerge™	**EasyWriter II™**	**VisiCalc®**	**SuperWriter®**
$309	$269	$189	$249

NOW, PAY LESS, AND GET GREAT SERVICE, TOO!

We know that after you pay plenty for a computer, you don't want to spend a fortune on software. That's why 800-SOFTWARE delivers the finest programs on the market, at the lowest possible price.

How?

By buying enormous quantities of software and selling it at a price you can afford.

You see, 800-SOFTWARE is one of the fastest growing software marketers in the country and we're making our mark by selling the products you want at prices that finally make some sense!

But don't take our word for it. Compare prices (ours *include* manuals!) and then decide for yourself.

OUR SERVICE CAN'T BE BEAT.

We take care of you like our business depended on it. Because it does.

That's why we provide the fastest delivery you can get anywhere. Which means when you place an order with 800-SOFTWARE, you can be sure that we'll fill it the same day. And that our unique Order Tracking System™ is keeping tabs on your order, every step of the way.

Our giant inventory—one of the largest in the United States—also assures you of the fastest possible service. Everything's in stock, so you don't have to wait.

ALL MAIL-ORDER SOFTWARE FIRMS ARE NOT ALIKE.

We're not trying to knock the competition. We'd rather let the facts speak for themselves.

FACT: Our prices are the lowest. Compare and prove it to yourself.

FACT: We aggressively seek out the hottest products and negotiate the best deals, so we can save you money.

We were the *first* mail-order dealer in the United States to stock Perfect Writer™, the word processor InfoWorld raved about.

(A lot of other mail-order firms *still* don't stock it.)

FACT: Our technical support and business software expertise is the best you will find anywhere.

One day, when you have a question, you'll be glad you ordered from 800-SOFTWARE.

If you're looking for the finest quality software at incredibly low prices, we invite you to call 800-SOFTWARE today.

We want to prove to you what we've proven to satisfied customers all over the world.

That our prices *are* lower. That our service *is* better. That there really and truly *is* a difference.

We look forward to your call.

CHECK OUT ALL OUR INCREDIBLE BUSINESS CP/M® PRICES.

ASHTON-TATE™	
dBase II	$489
DIGITAL RESEARCH™	
CBASIC	$ 99
FOX AND GELLER™	
Quickcode	$229
IUS™	
Easywriter II	$269
Easyspeller	$139
Easyfiler	$299
MICROPRO®	
WordStar	$249
WordStar MailMerge	$309
WordStar MailMerge SpellStar	$449
MailMerge	$ 79
CalcStar	$199
DataStar	$199
SpellStar	$169
SuperSort	$169
MICROSOFT™	
Softcard	$279
Videoterm (Vdex™)	$269
RamCard	$159
All Three Above	$559
MBASIC	$279
Enhancer II (Vdex™)	$109
Basic Compiler	$295
MICROSTUF™	
Crosstalk	$119
PERFECT SOFTWARE™	
Perfect Writer	$249
Perfect Speller	$139
Perfect Writer Perfect Speller	$349
Perfect Calc	$149
Perfect Filer	$279
All Four Perfect Products	$695
PICKLES AND TROUT™ (CP/M for TRS Model II and 16)	$169
SORCIM™	
SuperCalc	$189
SuperWriter	$249
SpellGuard	$179
TCS ACCOUNTING™	
General Ledger	$ 99
Accounts Payable	$ 99
Accounts Receivable	$ 99
Payroll	$ 99
All Four Above	$289
Inventory Management	$ 99
TRSDOS Accounting Package	$289
VISICORP®	
VisiCalc	$189
Other Visicorp Products	CALL
THE WORD PLUS™	$129

FREE GIFT!

GET 4 FLOPPY DISKETTES FREE WITH ANY PURCHASE, IF YOU ACT NOW!

☐ Your choice of 5¼" or 8"
☐ Brand new and brand name

CUSTOMERS TELL OUR STORY BEST!

"It is rare in this day and age to get shipment in five days which was promised in ten—and this is the way my order was filled... I have been very favorably impressed with your prompt and efficient service and excellent prices."

Peter Sweny, M.D.
West Hartford, Connecticut

"I very much appreciate your helpfulness and speed in filling my order. Rarely today do I have the opportunity to deal with a firm which shows such a high degree of professional ability. Mahalo and Aloha."

Joe Seil, Ulme, Hawaii

"It is indeed refreshing to deal with people as personable and professional as you have proven to be."

Dave Turner, U.S.N.
Lubbock, Texas

"Thank you very much for the very prompt service you gave me. I would be delighted to do business with you anytime in the future that you have something I need."

William Dresbeck
Lansing, Michigan

All letters on file.

TO ORDER, CALL TOLL-FREE:

800-227-4587

In California, 800-622-0678

CA residents add sales tax.

Copyright 800-Software, Inc. 1982

800-SOFTWARE

VISA MasterCard AMERICAN EXPRESS

OR WRITE:

800-SOFTWARE, INC.

185 Berry Street, Suite 6820, San Francisco, CA 94107

☐ Purchase orders accepted
☐ Prompt UPS 3 day Blue Label service
☐ Call for shipping charges.
☐ Now open Monday through Saturday

COMDEX overview

continued from page 1

More than a thousand exhibitors have filled the vast Las Vegas Convention Center, which has been expanded since last year. The show is so big, in fact, that trying to see everything in a few days is impossible.

Most COMDEX shows have interesting new-product announcements, and this show is no exception. A quantum leap in processing power is visible to the naked eye—dozens of new microcomputers equipped with 16-bit microprocessors line the aisles.

The personal computer of 1982 is a slick-looking, "ergonomically designed" machine. It's as if the industry had collectively decided that if Datsuns can look like Porsches, then why can't Qume terminals and MAD computers look like they were designed by Italian designers?

> No longer do most booths feature scantily clad women as major drawing card for sightseers. Those days are over.

Even a computer show changes with the times. No longer do most booths feature scantily clad women as the major drawing card for sightseers. Those days appear to be over. Now, many booths highlight magicians, talking "high-tech" robots and computerized slot-machines demonstration programs.

For the first time, a selection of second-generation software products specifically designed for the 16-bit microprocessor were on view.

Large crowds at the VisiCorp booth watched attentively as Visi on was demonstrated each half hour. Visi on is intended to serve a new user interface that runs above the operating system and handles application software. The hardware-independent system controls interaction with the screen and offers bit-mapped, high-resolution graphics and windows that can display several screens of information simultaneously.

The system employs a two-button mouse to issue commands to the screen and scroll text on the screen.

Visi on was introduced first on the IBM Personal Computer, and Digital Equipment Corporation announced that it would make Visi on available on its professional series of personal computers.

Although Visi on can be seen today, VisiCorp deliveries will not begin before the middle of 1983.

Mitch Kapor, president of Lotus Development Corporation and designer of VisiPlot and VisiTrend, demonstrated his company's integrated database management and business-graphics package called 1-2-3. The first version, which is designed for the IBM Personal Computer, has limited text-editing abilities, but Kapor said that a revised, updated version is in the works.

Not to be outdone, MicroPro International displayed its integrated database management and report-generating package called InfoStar. It's a combination of DataStar and ReportStar and uses a subset of the WordStar command structure.

Hyperstylized plastic

Hardware also had a new look at this show. New computers are elegantly contained in hyperstylized plastic modules. The days of the kludge are over.

A start-up company called MAD Computer impressed everyone with its good-looking machine (see related article), while an established company, Canon, offered its microcomputer entry, the AS-100, a full-color system with a detachable keyboard and a mouselike pointing device. Canon is providing both the CP/M-86 and MS-DOS operating systems.

Although most look-alike computers are imitating the IBM PC, new Apple II look-alikes are still cropping up.

Diamond Computers, a Los Altos, California-based company that has Korean connections, brought a nonfunctional version of the Diamond C-2 personal computer.

Diamond claimed that the C-2 will be fully Apple-compatible. The system sports an "ergonomic" terminal and keyboard.

For once, the elements didn't cooperate with the nation's largest small-computer show. The mammoth Las Vegas Convention Center was totally unprepared for the dregs of a hurricane that blew out of the Pacific Ocean on the second day of COMDEX.

While gale force winds whipped down the Strip, several inches of rain descended on the roof of the convention center, which was obviously better prepared for warding off the scorching desert sun.

Within hours after the rain started, a downpour had begun inside the convention center, drenching several booths that sprouted umbrellas and plastic sheets in an effort to ward off the onslaught and save the computers and terminals beneath.

To make matters worse, thousands of shipping crates were caught outside in the deluge, leaving exhibitors wondering how they were going to ship their equipment home. ■

The Choice of

Computer Exchange — The Supply Center for the IBM-PC

SOFTWARE for the IBM PC

BUSINESS

Item	List Price	Our Price
★ ASHTON TATE. dBase II requires CP/M 86 & 128K	$ 700	$448
dBase II requires PC DOS & 128K	$ 700	$448
APPLIED SOFTWARE TECHNOLOGY Versaform NEW	$ 389	$285
DAEAMOSE. Real Estate Investment Program NEW	$ 130	$ 99
Write-On	$ 130	$ 89
DENVER SOFTWARE Easy (Executive Accounting System)	$ 750	$545
EAGLE SOFTWARE Money Decisions NEW	$ 150	$199
HOWARDSOFT Real Estate Analyzer	$ 250	$199
INFORMATION UNLIMITED. Easywriter II (a WPS)	$ 350	$259
Easyspeller (RBH Words)	$ 175	$129
Easyfiler (a DBMS)	$ 400	$299
Easy Planner	$ 250	$189
INNOVATIVE SOFTWARE T.I.M. III (a DBMS)	$ 495	$368
★ INSOFT. Data Design (a powerful easy to use DBMS) NEW	$ 225	$188
ISA Spell Guard	$ 295	$220
ISM Mathemagic	$ 80	$ 69
Graphmagic NEW	$ 90	$ 85
Math/Graphmagic Combo NEW	$ 160	$109
LEXISOFT Spellbinder (a versatile WPS in CP/M 86)	$ 495	$249
★ MICROCRAFT Requires CP/M 86 & CBASIC 86		
Legal Billing & Time Bitkeeping	$ 750	$399
Professional Billing & Time Keeping — Billkeeper	$ 750	$399
★ MICRO LAB The Tax Manager	$ 250	$189
★ MICROPRO. WordStar® plus free WordStar Training Manual	$ 495	$248
MailMerge ™	$ 250	$ 99
SpellStar ™	$ 250	$199
3 Pak. Word & Mail & Spell, above 3	$ 845	$445
MICROSOFT Flight Simulator (by Sub-Logic) NEW	$ 50	$ 35
NORELL. Visualize	$ 100	$ 99
Easy Data DBMS	$ 250	$189
NORTH AMERICAN BUS SYSTEM The Answer	$ 250	$159
PRL CORPORATION Personal Investor NEW	$ 145	$ 99
★ PEACHTREE Peach Pak 4 (GL, AR & AP)	$ 595	$399
PERFECT SOFTWARE Perfect Writer ™	$ 389	$299
Perfect Speller ™	$ 189	$118
Perfect Filer ™	$ 289	$179
SELECT INFO Select (a WPS)	$ 595	$339
SORCIM ISA. SuperCalc	$ 295	$199
SuperWriter	$ 395	$269
SYNERGISTIC Data Reporter NEW	$ 250	$169
★ VISICORP VisiCalc®/256K	$ 250	$179
VisiDex	$ 250	$199
VisiTrend/Plot	$ 300	$219
VisiFile	$ 300	$299
Desktop Plan 1	$ 300	$299
VisiSchedule NEW	$ 300	$219
Business Forecasting Model NEW	$ 100	$ 75

UTILITY

Item	List Price	Our Price
RAGY SYSTEM Copy PC Backup Copier and Utilities	$ 35	$ 39
NOBELL DATA. System Backup Bit Copier	$ 50	$ 39
NORTON Norton Utilities 14 powerful programs 3 disks	$ 80	$ 55

HOME & EDUCATIONAL

Item	List Price	Our Price
ACORN Lost Colony	$ 30	$ 24
AUTOMATED SIMULATIONS Temple of Apshai	$ 40	$ 99
Oil Barons NEW	$ 100	$ 75
BRODERBUND Apple Panic	$ 30	$ 22
★ CONTINENTAL The Home Accountant Plus	$ 150	$112
DATAMOST Pig Pen	$ 30	$ 22
Space Strike	$ 30	$ 22
DAVIDSON The Speed Reader	$ 75	$ 55
INFOCOM Deadline	$ 50	$ 39
Zork I	$ 40	$ 29
Zork II	$ 40	$ 99
Zork III NEW	$ 40	$ 99
Golf Challenge NEW	$ 25	$ 19
Ulysses & The Golden Fleece	$ 35	$ 99
PSL CORP Personal Investor	$ 145	$ 99
SENTIENT Cyborg NEW	$ 99	$ 25
SIRIUS Conquest or Call to Arms	$ 30	$ 23
SPINNAKER Snooper Troops #1 or #2	$ 45	$ 99
Story Machine or Face Maker	$ 35	$ 25
STRATEGIC The Warp Factor	$ 40	$ 90
VERSA COMPUTING Graphics Hardcopy System	$ 25	$ 18

DISKETTES

Control Data Corporation 12 for 10 Special Limited Time!		
CDC 120 each, 5¼ with ring SS, SD (Apple IBM etc.)	$ 450	$190
12 each, 5¼ with ring SS, SD (Apple IBM etc.)	$ 40	$ 22
12 each, 5¼ with ring SS, SD (H/P IBM 320K etc.)	$ 51	$ 29
12 each 8" SS, SD	$ 51	$ 28
10 each, 5¼ with ring DS, DD (IBM)	$ 50	$ 39
IBM 10 each, 5¼ SS, SD (Apple IBM etc.)	$ 80	$ 45
10 each, 5¼ SS, DD (H/P IBM 320K etc.)	$ 65	$ 48
VERBATIM 10 each 5¼ with ring SS, SD or SS, DD	$ 50	$ 28
MAXELL 10 each, 5¼ SS, SD	$ 55	$ 35
DYSAN 10 each 5¼ SS, SD	$ 55	$ 99
10 each, 5¼ DS, DD	$ 65	$ 49

★ Means a BEST buy.

AD #950

Hot Line For Information On Your Order (503) 772-3803

VISA

64K IBM-PC . . . $2,995

Or 256K . . . $3,430

System Includes (2) 320K Disk Drives 12" Green Monitor

Monitor Not As Shown

Call For Details

HARDWARE for the IBM PC

Item	List Price	Our Price
AST RESEARCH Combo Plus, 64K with async. port	$ 495	$359
Combo Plus, 64K with parallel port	$ 495	$399
Combo Plus 64K w async & para	$ 555	$395
Combo Plus 64K w async para & clock/cal	$ 595	$499
For above Combo Plus™ 128K add $85 for 192K add $192 for 256K add $256		
Parity Memory w SuperDrive. 64K	$ 395	$265
128K	$ 535	$348
192K	$ 675	$435
256K	$ 795	$495
CORVUS Hard Disk System		Call
CURTIS, PC Pedestal™ for Display on PC	$ 80	$ 85
8 Foot Cable for IBM Mono Display (extends 3' M 913)	$ 50	$ 45
DAVONG DSI 501 Hard Disk, 5 Meg	$1995	$1490
MICROSOFT 64K RAM Card w Parity	$ 350	$259
128K RAM Card w Parity	$ 515	$395
256K RAM Card w/Parity	$ 875	$658
64K RAM Chips™	$ 175	$190
Tecmar Inc. ALLinONE Board 64K	$ 565	$415
128K	$ 735	$535
256K	$ 975	$675
QUADRAM CORPORATION Quadboard, 64K expandable to 256K 4 function board	$ 590	$435
Quadboard, 128K expandable to 256K 4 function board	$ 775	$565
Quadboard, 192K expandable to 256K, 4 function board	$ 895	$690
★ Quadboard 256K four function board	$ 995	$470
Memory Board 512K with Serial Port #6512	$1290	$995
Memory Upgrade Kit 64K (9 chips), #8260	$ 150	$ 99
Microfazer Snap-on 8K Par/Par Epson #ME8 w/PS1	$ 190	$145
Microfazer Snap-on 64K Par/Par Epson #ME64 w/PS1	$ 299	$235
Power Supply for Microfazer (9V 25A) #PS1	$ 20	$ 15
TG PRODUCTS Joystick	$ 65	$ 46
Tandon TM100-2 Double Sided 320K 1 ea	$ 350	$259
★ 2 or more	$ 350	$248
Same Disk Drives as now supplied on IBM PC		
XEDEX ★ Baby Blue 64K plus CP/M 80 operation	$ 600	$448

PRINTERS AND ACCESSORIES

Item	List Price	Our Price
EPSON See Epson section below		
STAR MICRONICS Gemini 10	$ 499	$385
Gemini 15	$ 649	$499
APPLE COMPUTER INC Silentype Printer for Apple II	$ 390	$335
IDS Microprism 480 near letter quality 110cps, 80 col	$ 799	$490
Prism 80 Color 200cps (all options-color, sprint, auto)	$1795	$1450
★ Paper Tiger 440 w Graphics and 2K Limited Special	$1295	$490
LETTER QUALITY — DAISY WHEEL PRINTERS		
★ OLYMPIA ES 100 Printer/Typewriter complete with all interfacing to the Apple II	$1735	$1290
COMREX Comriter CR-1 RS232 Serial I/F 200 wpm	$1190	$845
Comriter Tractor Feed for CR-1	$ 110	$ 99
SUPPLIES Tractor Feed Paper Ribbons, Heads Qume Daisy Wheels & Ribbons		

EPSON PRINTERS & ACCESSORIES

Item	List Price	Our Price
★ MX80 F/T III with Graftrax+	$ 745	$525
MX100 F/T III with Graftrax+	$ 995	$699
IBM PC to Epson Cable	$ 80	$ 45
Apple Interface and Cable for MX80 or MX100	$ 120	$ 99
Grappler+ by Orange Micro, specify printer	$ 165	$119
Apple Graphics Dump	$ 15	$ 9
Atari to Epson Cable	$ 40	$ 30
TRS 80 to Epson Cable	$ 40	$ 30
Other cables, interfaces, ribbons, heads and paper in stock		Call

8" CP/M-80 BUSINESS & SYSTEM SOFTWARE

Item	List Price	Our Price
★ ASHTON-TATE dBase II	$ 700	$449
COMSHARE TARGET Target PlannerCalc	$ 99	$ 99
Masterplanner	$ 325	$225
PlannerCalc Applications Pkg	$ 50	$ 40
PlannerCalc Combo Pkg	$ 199	$ 85
INFOCOM Deadline	$ 60	$ 45
Zork I	$ 50	$ 39
Zork II	$ 50	$ 99
Zork III NEW	$ 50	$ 99
Starcross NEW	$ 50	$ 99
ISM Mathemagic	$ 100	$ 75
MICROCRAFT Legal Billing & Time Keeping	$ 750	$395
Prof Billing & Time Keeping — Billkeeper	$ 750	$395
★ MICROPRO WordStar® plus free WordStar Training Manual	$ 495	$248
MailMerge™	$ 250	$ 79
SpellStar ™	$ 250	$199
3 Pak, Word & Mail & Spell, 3 above	$ 845	$395
SuperSort	$ 250	$169
DataStar	$ 295	$199
CalcStar	$ 145	$ 99
MICROSOFT Multiplan	$ 275	$199
Fortran 80	$ 500	$325
BASIC Compiler	$ 395	$295
COBOL 80	$ 750	$545
BASIC 80	$ 350	$275
muLisp/muStar 80	$ 200	$145
M Sort 80	$ 199	$145
Edit 80	$ 120	$ 80
Macro 80	$ 200	$145
OASIS. The Word Plus (45,000 word verification)	$ 150	Call
PEACHTREE. Magic Wand	$ 500	$199
Series 4 GL, AR, AP or Inventory each	$ 600	$399
Series 9 GL, AR, AP Inv or Pay each	$ 750	$499
Series 8 Peach Text	$ 500	$330
Series 9 Spelling Proofreader	$ 300	$199
Series 8 Calc, Mail List or Telecomm. each	$ 375	$245
PERFECT SOFTWARE. Perfect Writer ™	$ 389	$299
Perfect Speller ™	$ 199	$119
Perfect Filer ™	$ 289	$179
SELECT INFO Select (a WPS)	$ 599	$399

MONITORS

Item	List Price	Our Price
NEC. 12" Green	$ 249	$159
12" Color Composite	$ 450	$349
SANYO 9" B&W	$ 190	$149
9" Green	$ 200	$139
★ 12" B&W Special Truckload Sale	$ 250	$139
12" Green	$ 260	$195
13" Color Composite	$ 470	$349
13" Color RGB	$ 995	$799
ZENITH 12" Green	$ 150	$119
AMDEK. 12" Green #300	$ 200	$159
13" Color I Composite	$ 449	$359
13" Color II RGB Hi Res (Ap II, III & IBM PC)	$ 899	$799
13" Color III RGB Commercial (Ap II, III)	$ 509	$468
DVM Color II or III to Apple II Interface	$ 199	$175
Note Color II and III come with cable for IBM PC		

MODEMS AND TELE COMMUNICATIONS TERMINAL

Item	List Price	Our Price
HAYES. Micromodem II (for the Apple II)	$ 379	$299
Apple Terminal Program for Micromodem II	$ 99	$ 69
NOVATION Applecat II Modem	$ 389	$289
212 Apple Cat	$ 725	$599
HAYES. Stock Chronograph (RS-232)	$ 249	$189
Stock Smartmodem (RS 232)	$ 289	$225
Smartmodem 1200 (RS 232)	$ 699	$535
Micromodem 100 (S 100 bus)	$ 399	$275
SIGNALMAN Modem MKI (RS 232)	$ 99	$ 90
IBM PC to Modem Cable	$ 39	$ 29
AXLON Dataline 1000 Hand Held Communications Terminal	$ 399	$325

CORVUS SYSTEMS

Item	List Price	Our Price
★ 5 Meg Hard Disk, w/o interface	$2995	$2095
★ 11 Meg Hard Disk w/o interface	$4795	$2685
★ 20 Meg Hard Disk w/o interface	$5795	$3495
IBM PC Interface (IBM DOS) Manual & Cable 5	$ 300	$239
Mirror built in for easy backup	$ 790	$585
Apple Interface Manual & Cable 5	$ 300	$299
Other Interfaces, Omni Net, Constellation, Mirror All in Stock		

hp	List Price	Our Price
H/P 7470A Graphics Plotter	$1550	$1185
H/P 41C Calculator	$ 195	$169
H/P 41CV Calculator with 2.2K Memory	$ 275	$239

Portland, OR Cash & Carry Outlet 11507 D SW Pacific Hwy Terrace Shopping Center Tigard OR Over the counter sales only On 99W between Sts 217 and Interstate 5 Call 245 1020

ORDERING INFORMATION AND TERMS: All mail to P.O. Box 1380, Jacksonville, OR 97530. All items usually in stock. We immediately honor Cashiers Checks, Money Orders, Fortune 1000 Checks and Government Checks. Personal or Company Checks allow 20 days to clear. No C.O.D. Add 3% for VISA or MC. Include telephone number. Add 3% for shipping, insurance and handling (S.I&H) with $5 minimum. UPS ground is standard so add 3% more for UPS Blue with $10 minimum. Add 12% total for S.I&H for US Postal APO or FPO with $15 minimum. For Hawaii, Alaska and Canada, UPS is in some areas only, all others are Postal so call, write, or specify PO. Foreign orders except Canada for S.I&H add 18% or $25 minimum except for monitors add 30% or $50 minimum. Prices subject to change and type errors, so call to verify. All goods are new, include factory warranty and are guaranteed to work. Due to our low prices, all sales are final. Call before returning goods for repair or replacement. Orders received with insufficent S.I&H charges will be refunded. ORDER DESK HOURS 8 to 6 PST M-F and 10 to 4 Sat. 1 PM here is 4 PM in NY.

OUR REFERENCES: We have been a computer dealer since 1978 and in mail order since 1980. Banks: First Interstate Bank, (503) 776-5620 and Jefferson State Bank (503) 773-5333. We belong to the Chamber of Commerce, (503) 772-6293 or call Dun & Bradstreet if you are a subscriber. Computer Exchange is a division of O Tech Group, Inc.

Apple drives

continued from page 1

increased to 10,000 per inch, based on the introduction of a new floppy-disk medium.

According to Yarkoni, the new disks will offer significantly longer floppy-disk life than current dual-headed drives.

"Media wear has been a major problem," Yarkonl says. "We think that we will set a new standard in the area of disk media."

Disk drives that offer dual-sided reading capabilities usually have heads on each side of the diskette, at the same place, pressing against each other. In the UniFile and DuoFile, the disk heads have been moved to opposite sides of the disk. Instead of pressing against each other, the heads will press against a pressure plate designed to reduce wear.

The new disks will also use an Intelligent controller to allow Increased sector densities by varying the system's rotational speed.

> 'Media wear has been a major problem. We think we'll set a new standard in the area of disk media.'
> —Apple rep Barry Yarkoni

Yarkoni says that the new disk drives are the result of a three-year development project at Apple. He adds that Apple plans to manufacture the drives and that Alps, a Japanese corporation has been selected as a second source to produce drives.

The UniFile, with an add-in disk controller for the Apple III, will be priced at $995. DuoFile will cost $1695.

Yarkoni says that the new drives will be attractive to users who don't want to pay the cost of a hard disk to gain increased storage. Apple has also decided to lower the price of its ProFile hard disk to $2195, down from $2995. Yarkoni says that the new disks will not compete with the ProFile.

At COMDEX, Apple also announced Backup III, an "Intelligent backup program" that will allow users to systematically back up the ProFile hard disk for the first time.

In addition, Apple introduced COBOL III, developed by Micro Focus for the Apple III. The new COBOL will be priced at $495.

Finally, Apple said it will offer an IBM 3270 cluster-controller emulator. The new hardware/software interface will allow up to seven Apple II and Apple III computers to communicate with an IBM host.

The device will be available in a System Network Architecture/Synchronous Data Link Control (SNA/SDLC) version and a Binary Synchronous Communication (BSC) version that emulates the IBM 3271 Cluster Controller. The product is scheduled to be available in the middle of 1983, according to Apple. No price has been set. ■

Professionals

LOW PRICES TO PROFESSIONALS WHO KNOW WHAT THEY WANT AND KNOW HOW TO USE IT.

Manufactured Exclusively for Bell & Howell by apple computer

	LIST PRICE	OUR PRICE
B&H APPLE II+ 64K (48K + COEX 16K)	$1725	$1150
Disk, Micro Sci A2 w/3.3 Controller	$579	$378
Disk, Micro Sci A2 Only	$479	$299

The B&H Apple II+ differs from the Apple Apple II+ only in that it is in black hammertone color and its warranty is longer. Warranty: Factory warranty is by Bell and Howell (not by Apple) and is one year parts plus 90 day labor. Warranty service available at Bell and Howell service centers or return to Computer Exchange.

apple II/II+ supply center

SPECIAL

B & H APPLE II+ 64K STARTER SYSTEM $1,595 SAVE $ R34

- 48K B&H APPLE II+
- COEX 16K RAM Card
- Micro Sci A2 Disk Drive with 3.3 Controller
- Central Point Filer, Apple II+ 3.3 DOS plus many utility programs
- Sanyo 9" Green Monitor
- RF Modulator (for color TV)
- Game Paddles
- Game with Color Graphics and Sound

μ-SCI MICRO-SCI FOR THE APPLE II/II+ III DIRECT SUBSTITUTES for APPLE DRIVES

Micro Sci A2 drives and/or controllers are direct plug compatible substitutes for Apple drives and controllers.

	LIST PRICE	OUR PRICE
● For Apple II		
A2 5¼" 143K Disk Drive	$ 479	$299
Controller Card for A2 Drive	$ 100	$ 79
A40 5¼" 160K Disk Drive	$ 449	$359
A70 5¼" 286K Disk Drive	$ 599	$479
Controller for A40 or A70	$ 100	$ 79
Filer, Disk Utility Software	$ 20	$ 15

HARDWARE for Apple II/II+

		LIST PRICE	OUR PRICE
RAM EXPANSION			
★ COEX RAM Card	16K	$ 129	$ 99
★ ALS, ADDRam	16K	$ 149	$ 29
★ Microsoft, RAMCard	16K	$ 199	$ 99
★ Saturn Systems,	32K	$ 249	$169
	64K	$ 425	$319
★ Axlon	128K	$ 475	$375
★ Axlon, RAM Disk	320K	$1395	$995
80 COLUMN VIDEO CARDS			
★ ALS, Smarterm		$ 345	$249
Videx, Videoterm		$ 345	$229
Vista, Vision 80		$ 395	$199
MISCELLANEOUS			
ALS, Smarterm 80 Col Card Special		$ 345	$249
2 Card (Z 80) W/CPM Special		$ 269	$199
★ 16K ADDRam Special		$ 149	$ 79
Synergizer w/S'calc + Condor		$ 749	$529
Axlon, 320K RAM Disk System		$1395	$995
ASTAR, RF Modulator		$ 35	$ 25
CCS, Serial Interface 7710A		$ 150	$129
Other CCS Cards in stock		Call	Call
Dan Paymar, Lower Case Chips		$ 50	$ 39
Don't Ask, DAO-003 S.A. Mouth		$ 125	$ 85
Rensington, System Saver		$ 80	$ 69
Kraft, Joystick		$ 65	$ 49
Paddle		$ 50	$ 39
M&R, Sup R fan		$ 50	$ 39
★ Microsoft, Z80 Softcard Pack		$ 345	$245
★ Softcard Premium Pack		$ 695	$495
★ 16K RAMCard		$ 100	$ 99
Mountain, CPS Multifunction Card		$ 239	$199
Orange Micro, Grappler Plus		$ 165	$119
Practical Peripherals			
MBS 8K Serial (Epson)		$ 159	$129
MBP 16K Para (Epson)		$ 159	$129
Microbuffer II 16K (specify)		$ 299	$209
Microbuffer II 32K (specify)		$ 299	$229
★ PCPI, Appli-Card, 14 features			
4 Mhz		$ 445	$325
6 Mhz		$ 995	$435
BH Electronics, Super Fan II		$ 75	$ 59
SSM A10-II, Serial/Para Interface		$ 225	$169
TG Products, Game Paddles		$ 40	$ 29
Joystick		$ 60	$ 85
Select A-Port		$ 60	$ 85
Versa, VersaWriting Graphics Tablet		$ 300	$239
★ Videx, Videoterm 80 col		$ 345	$249
Soft Video Switch		$ 35	$ 25
Enhancer II		$ 149	$ 99
Function Strip		$ 79	$ 59
Full Videx Line Call Up to 35% off			
WICO, Trackball		$ 80	$ 55

NEC LIMITED SPECIAL

	LIST PRICE	OUR PRICE
8001 32K Computer	$ 995	$499
286K Total, Dual Drive PC8031	$ 995	$699
32K addon and I/O Unit PC8017	$ 649	$485
Call for other software and accessories		

SOFTWARE on disk for Apple II/II+

BUSINESS

	LIST PRICE	OUR PRICE
Apple Computer, Inc		
The Controller GL, AR, AP	$ 625	$399
Apple Writer II	$ 150	$119
Apple Pascal	$ 250	$199
Apple Fortran	$ 200	$159
DOS Tool Kit	$ 75	$ 99
DOS 3.3 Upgrade Kit	$ 75	$ 99
Apple Pilot	$ 150	$118
DJ Portfolio Evaluator	$ 99	$ 45
How to!	$ 50	$ 29
Microcourier	$ 250	$129
Micro Telegram	$ 250	$125
Apple Logo	$ 175	$149
Applied Soft Tech., VersaForm	$ 389	$295
Artsci, MagicWindow II New!	$ 150	$ 99
Ashton-tate, dBase II (CP/M)	$ 700	$439
Continental, GL, AR, AP or PR ea.	$ 250	$189
1st Class Mail	$ 75	$ 48
Home Accountant	$ 75	$ 49
Hayden, Pie Writer (Specify brd.)	$ 129	$ 99
★ High Tech., Job Control Sys.	$ 750	$350
Info Master	$ 189	$118
Howard Soft,		
Real Estate Analyzer II	$ 195	$129
Tax Preparer	$ 150	$ 99
Info. Unlim., Easywriter (PRO)	$ 175	$119
★ ISA, Spellguard (CP/M)	$ 295	$ 99
LJK, Letter Perfect w/MailMerge	$ 199	$ 99
★ Micro Craft, (CP/M)		
Professional Billkeeper	$ 750	$395
Legal Billing & Timekeeping	$ 750	$395
Micro Lab, Invoice Factory	$ 200	$ 99
Tax Manager	$ 150	$ 99
Micro Pro, (all CP/M)		
WordStar® + Training Manual	$ 495	$199
MailMerge™	$ 250	$ 69
SpellStar™	$ 250	$ 99
SPECIAL! All 3 above	$ 895	$349
Data Star™	$ 295	$149
★ Microsoft, Multi-Plan (CP/M)	$ 275	$175
Multi-Plan (DOS 3.3) New!	$ 275	$175
Muse, Super Text 40/80	$ 175	$129
Super Text 40/56/70 New!	$ 129	$ 95
★ On-Line, ScreenWriter II	$ 130	$ 99
The Dictionary New!	$ 100	$ 89
General Manager II New!	$ 230	$155
Osborne/C.P. Soft. (Disk and Book)		
★ Some Common Basic Programs. 75 Business, Statistics and Math programs for the Apple II	$ 100	$ 99
★ Practical Basic Programs 40 more very valuable programs beyond "Some Com Basic Prog"	$ 100	$ 49
Peachtree: Requires CP/M and MBASIC. Specify Videoterm or 40 columns.		
Series 40 GL, AR or AP, each	$ 400	$275
Series 40 GL & AR & AP, all 3	$ 595	$299
Series 40 Inv or Pay ea	$ 400	$275
Series 9 Text 9 Spell 9 Mail, all 3	$ 595	$395
Series 80 GL 9 AR 9 AP, Videx	$ 595	$395
Perfect, Perfect Writer	$ 389	$239
Perfect Speller	$ 189	$119
Perfect Filer	$ 289	$179
Quality, GBS w/3 gen (a DBMS)	$ 650	$475
Sensible, Sens Speller specify	$ 129	$ 95
★ Silicon Valley, Word Handler	$ 250	$139
Sof/Sys, Executive Secretary	$ 250	$189
Executive Speller	$ 75	$ 55
Solidus/Softech		
★ Stockfile	$ 600	$399
Stockseller	$ 700	$499
Systems Plus		
Acctg Plus, General Ledger	$ 425	$295
Acctg Plus, GL, AP and A/R	$ 995	$595
Acctg Plus, above + Inventory	$1395	$775
Software Publishing,		
PFS II	$ 129	$ 95
Report	$ 95	$ 85
Graph	$ 125	$ 85
Southeastern Data Capbite, call M specify		$155
Stoneware, DB Master	$ 229	$155
DB Utility I or II	$ 99	$ 99
Videx,		
Applewriter II preboot disk	$ 20	$ 15
Visicalc to 64K preboot disk	$ 50	$ 39
Visicalc to 176K preboot disk	$ 80	$ 68
VisiCorp/Personal Software,		
Visicalc 3.3	$ 250	$129
VisiDex Special	$ 250	$199
VisiFile	$ 250	$129
Desktop Plan II	$ 250	$129
Desktop Plan III	$ 300	$219
Visiplot	$ 200	$149
VisiSchedule New!	$ 300	$219
VisiTrend & VisiPlot	$ 300	$219
VisiTerm	$ 100	$ 29

UTILITY & DEVELOPMENT

	LIST PRICE	OUR PRICE
Beagle, Utility City	$ 30	$ 22
DOS Boss	$ 24	$ 19
Apple Mechanic New!	$ 30	$ 22
Central Point Software		
Filer DOS Utility	$ 20	$ 15
★ Copy II Plus (bit copier)	$ 40	$ 35
Spoon, Graphics Dump	$ 15	$ 9
Insoft,		
GraFORTH by Paul Lutus	$ 75	$ 99
TransFORTH II by Paul Lutus	$ 125	$ 99
Microsoft,		
ALDS	$ 129	$ 75
BASIC Compiler	$ 395	$299
Cobol 80	$ 750	$559
Fortran 80	$ 195	$149
TASC Compiler	$ 175	$159
★ Omega, Locksmith (bit copier)	$ 100	$ 75
Penguin, Comp Graphics Sys New!	$ 70	$ 53
Graphics Magician New!	$ 60	$ 41
Phoenix, Zoom Grafix	$ 40	$ 28
Quality, Bag of Tricks New!	$ 40	$ 29
Sensible, Back It Up, (bit copier)	$ 80	$ 49

WHILE THEY LAST ● OVERSTOCK SPECIALS ● FOR APPLE II/II+

	LIST PRICE	OUR PRICE
COEX 16K RAM Card Special	$ 179	$ 99
ALS 16K AddRAM Card	$ 149	$ 29
Microsoft 16K RAMCard	$ 199	$ 89
Saturn Systems 32K RAM Card	$ 249	$169
ALS ZCard Z80 CP/M Card	$ 269	$199
ALS Smarterm 80 Col. Card	$ 345	$249
ALS Synergizer Pack, 3 above plus Supercalc plus Condor Jr	$ 749	$529
Videx Videoterm 80 column card	$ 345	$239

HOME & EDUCATION

		LIST PRICE	OUR PRICE
Broderbund,			
Apple Panic		$ 30	$ 21
Arcade Machine		$ 45	$ 40
Choplifter	New!	$ 35	$ 29
Many others			Call
Budgeco, Raster Blaster		$ 29	$ 22
Continental, Home Accountant		$ 75	$ 49
Datamost, Snack Attack		$ 30	$ 24
Datasoft, Canyon Climber	New!	$ 30	$ 23
Edu-Ware, Several in stock		Call	Call
Auto. Simulations,			
Introductory 3-Pack		$ 50	$ 35
Hayden, Sargon II (Chess)		$ 35	$ 29
Infocom, Deadline		$ 50	$ 38
Insoft, Electric Duet by Lutus		$ 30	$ 28
Zargs	New!	$ 35	$ 27
Spider Raid	New!	$ 30	$ 24
Lightning, Mastertype		$ 40	$ 29
Microsoft, Olympic Decathlon		$ 30	$ 24
Typing Tutor II		$ 25	$ 15
Muse, Robot War		$ 40	$ 29
Castle Wolfenstein		$ 30	$ 23
On-Line, Frogger	New!	$ 35	$ 29
Ultima II		$ 55	$ 40
Softporn (X Rated)		$ 30	$ 22
Piccadilly, Warp Destroyer		$ 30	$ 29
Sirius, Gorgon		$ 40	$ 29
Sir-Tec, Wizardry		$ 99	$ 29
Knight of Diamonds	New!	$ 35	$ 26
Sub Logic, Flight Simulator		$ 34	$ 25
Pinball		$ 30	$ 23
Strategic, Southern Command		$ 60	$ 45
OTHER BRANDS IN STOCK CALL			

ATARI

	LIST PRICE	OUR PRICE
800 Computer 48K	$1099	$665
810 Disk Drive	$ 600	$499
850 Interface	$ 220	$189
410 Recorder	$ 100	$ 79
Axlon,		
★ Rampower 128K System (for 800)	$ 475	$350
Rampower 48K Module (for 400)	$ 185	$135
★ Rampower 32K Module (400 or 800)	$ 120	$ 99
Free with above 3 Ramocan Diagnostic Diskette		
Call for other software and accessories		

commodore

	LIST PRICE	OUR PRICE
VIC 20 Home Computer	$300	$199
Datasette VIC 1530	$ 75	$ 59
Disk Drive VIC 1540	$ 399	$369
Call for other software and accessories		

AD #950

THE WORLD'S LARGEST COMPUTER MAIL ORDER FIRM

Computer Exchange™

ALL MAIL: P.O. Box 1380, Jacksonville, OR 97530

WAREHOUSE AND OFFICES BY APPOINTMENT AT 6791 UPPER APPLEGATE ROAD

NATIONAL ORDER DESK TOLL FREE (800) 547-1289 ORDERS ONLY

All Other Orders Including Oregon: 772-3256

Corona PC

continued from page 1

the Coronas from the IBM PC is the graphics capability of the new machines. Without loss of IBM software compatibility, the Coronas can generate 640 × 325 resolution. The screen is memory-mapped in main memory rather than on an interface card, allowing rapid image swapping for impressive real-time graphics. The graphics capabilities are part of the machine, so no expansion slot is needed for a graphics card. The company showed that text and graphics can be intermixed and overlapped.

Corona's new computers are compatible with the IBM PC.

The character-generation resolution is also better than the IBM's, with a 16 × 13 matrix, compared to IBM's 14 × 7.

The keyboard is almost an exact duplicate of the IBM keyboard, retaining the controversial key placement.

According to Robert Kramarz, vice-president of corporate communications, Corona is seriously thinking about using a standard Selectric layout instead.

According to Corona president, Daniel Carter, the company plans to offer MS-DOS, UCSD p-System, CP/M-86 and finally UNIX. "We are developing our own word processor, too," added Carter.

Carter said that he doesn't think this product will attract the same buyers as an Osborne would, but that it will compete in the lucrative IBM market.

Initial shipments of the Corona PC will begin in January 1983, and the Portable PC is scheduled for April 1983. The machines are slated to be shipped with MS-DOS, graphics, BASIC and a spreadsheet package at no extra cost. ■

PC World

continued from page 1

Communications, a newly formed subsidiary of CW Communications.

The rift with Ziff-Davis occurred because *PC Magazine* staff members felt their rights had been violated when the majority stockholder and founder of the magazine, Anthony Gold (who is also a founder of Lifeboat Associates), sold his share of the company to Ziff-Davis.

Last year Gold put up about $200,000 to start Software Communications, the company that published *PC Magazine*. According to Bunnell, Gold owned 55% of the venture. Bunnell and other staff members controlled the remaining 45%.

The agreement with Gold, which Bunnell said was in the form of several letters, showed that Bunnell's percentage of the stock would be fully vested over a three-year period. It also said that if during that time a controlling interest in the company was sold, the 45% would revert to Bunnell and his staff immediately.

Over the past four months, *PC Magazine* had been courted by numerous suitors, including CW Communications, Ziff-Davis, CBS Publications, McGraw-Hill Publications and others, Bunnell said. He said all the interested parties, except Ziff-Davis, recognized that Bunnell and his staff controlled 45% of the company. "Ziff-Davis was not our first choice as a buyer.

"Tony Gold promised in writing and orally that he would not conclude a deal with Ziff-Davis until he had [the staff's] approval," Bunnell added.

PC Magazine was interested in merging with a larger organization that would help finance its growth, Bunnell said.

"It was a mutually agreed-upon plan between David and me to find somebody who had the publishing and financial resources to develop a very valuable property," said Gold

Bunnell maintained that his relationship with Tony Gold had been strained because of lack of financial and moral support. "He called us an artistic success and a commercial failure. We felt he didn't care," said Bunnell.

"The morale has been low recently at *PC Magazine*. On November 9, when Tony came to the offices, he harassed the staff so much the entire staff walked out," said Cheryl Woodard, former associate publisher at *PC Magazine*, who was named *PC World*'s associate publisher.

Gold would not comment on his relationship with Bunnell and the *PC Magazine* staff. He did say, however, "I sincerely believe my transaction [with Ziff-Davis] didn't disadvantage David."

Ziff-Davis took control of *PC Magazine* on Friday, November 19. Bunnell found out the following Monday. He said he turned up for work to find executives from Ziff-Davis waiting at the *PC Magazine* offices in San Francisco. They informed Bunnell that Ziff-Davis controlled the publication and offered Bunnell and the staff new employment contracts as a substitute for equity, according to Bunnell. "We didn't feel we had a choice but to negotiate," said Bunnell.

Bunnell then approached CW's McGovern.

No comment

"The people at *PC Magazine* came to me and said the sale [to Ziff-Davis] was a great surprise and violated agreements they had with the majority shareholder [Tony Gold]," said McGovern. "They said they couldn't in good faith work for the new publisher and said they would resign and asked if they could join our organization."

Ziff-Davis would not comment on the developments, said Larry Sporn, executive vice-president.

At the time this story went to press, no legal action had been taken by any of the parties involved in the negotiations.

The first issue of the new magazine *PC World* is scheduled for January 1983. "The first issue is going to be on second-generation software for the IBM Personal Computer," said Andrew Fluegelman, former associate editor of *PC Magazine*, who was named editor of *PC World*.

COMDEX was much the same this year as last for the former staff of *PC Magazine*. In 1981, they cruised the aisles trying to sell the idea for a new magazine, called *PC*, dedicated to the IBM PC user. This year they were doing the same for *PC World*. ■

Your Search Is Over

Let SOFSEARCH™, the World's First Software Locator Service, steer you toward a safe software harbor.

Trust Sofsearch™ to find your software solutions.

Tired of floundering about in a sea of unfamiliar software? Has pouring over software directories thrown you off course? **Search no more. Sofsearch™** will find the software you need for your micro, mini, or mainframe computer. Quickly and reliably. We never steer you wrong.

SOFSEARCH™

Call: 1-800-531-5955 1-800-334-2121 (Calif. Only)
1-800-334-2122 1-800-392-4566 (Tex. Only)

Franchise and Dealer Inquiries Invited

A Service of Sofsearch International, Inc.

REDUCE SOFTWARE DEVELOPMENT TIME BY 90%!

INFO-80 provides building blocks for file definition, data entry & editing, file sorting & merging, record access & selection, report & letter writing, file format conversion and menu job control. You can include your own custom programs written in any CP/M based language.

Each building block includes: (1) an interactive task definition program, (2) a documentation program, and (3) a task execution program. INFO-80 requires a CP/M based computer with at least 500K of disk storage and Microsoft BASIC. A single CPU license is $395.

Call our software HOT LINE
906/228-7622.

The Software Store

706 Chippewa Square • Marquette MI 49855

SofTech releases three products for the UCSD p-System

Print Spooler, KSAM, Edvance are new offerings

By Scott Mace, IW Staff

Print spooling, a keyed sequential access (KSAM) feature and an advanced system editor are being released for the UCSD p-System by SofTech Microsystems.

Print Spooler allows users to have text files printed continuing normal p-System operations, such as text editing or data entry.

The spooler permits users to create a print queue of up to 21 files, to delete files from the print queue, to display the names from the print queue, to display the names of files currently in the print queue, to temporarily or permanently halt printing of the current file, to continue printing the current file after a temporary halt or to print the next file after a permanent halt.

KSAM supports sequential and keyed retrieval of data. It is designed for use in applications where fast access to information is necessary. Such applications include inventory control, reservation systems, library systems and accounts receivable.

Records contained in UCSD p-System files of such applications can be designated and retreived by means of identifying keys within each record. Examples of such keys are parts numbers for inventory control, account numbers for billing systems and customer names for mailing-list applications.

Users can invoke the new system editor, Edvance, as the standard p-System editor if they choose. Edvance is available as an option.

Edvance includes several enhancements over the normal p-System editor. With Edvance, users can edit arbitrarily large files, limited only by disk capacity; "paint" tables and graphs on the terminal screen; edit a file within a file and then return to the original file; "remember" keystroke sequences through user-defined macros; and obtain a menu of text files from within the editor.

The print spooler sells for $50. KSAM and Edvance are available for $200 each. ■

MAD-1

continued from page 1

MAD stands for Modular Advanced Design. The new computer is a handsome, futuristic-looking system with a flat, lightweight keyboard and thin dual disk drives that match the "module" that houses the computer's CPU. The SyQuest 3.9-inch, five-megabyte, removable-cartridge hard disk is available as an option.

The tilting display looks similar to the one used on the DEC Rainbow computer.

A basic configuration that will cost around $3000 comes with 128K RAM; 16K ROM; a 5¼-inch double-sided, double-density disk drive with 320K bytes of formatted storage; two RS-232 serial interface ports; and one parallel port. The display has 720 X 350 pixel resolution, a phosphor green display and a video controller that offers both color and monochrome display.

When the machine is shipped in early 1983, it will come with the MS-DOS operating system. Concurrent CP/M-86 will be available as an option. Application software is likely to include WordStar and Peachtree accounting programs.

The big difference between the MAD-1 and the array of PC clones, according to Nafeh, is the software planned for release 18 months from now. "These application programs will represent a quantum leap forward in performance and simplicity of operations. The microcomputer, as we know it today, will seem as primitive as the slide rule, compared to the digital calculator." ■

MICRO-PRICING™

DON'T PAY MORE

THAN YOU HAVE TO FOR YOUR CP/M® AND IBM® SOFTWARE! AND GET TOLL-FREE TECHNICAL SUPPORT TO BOOT!

CP/M®

dBASE II $479 ASHTON-TATE	WORDSTAR $289 MICROPRO	SUPERCALC $199 SORCIM	CROSSTALK $139 MICROSTUF
QUICKCODE $229 FOX & GELLER	MAILMERGE $89 MICROPRO	PERFECT WRITER $239 PERFECT SOFTWARE	C BASIC 2 $99 DIGITAL RESEARCH
BASIC 80 $284 MICROSOFT	MULTIPLAN $239 MICROSOFT	SALESPRO $495 WINTERS ASSOCIATES	MICROSHELL $149 N.G.S.

IBM®

dBASE II $479 ASHTON-TATE	WORDSTAR $289 MICROPRO	SUPERCALC $199 SORCIM
SPELLGUARD $199 SORCIM	MAILMERGE $89 MICROPRO	CONDOR 20-II $495 CONDOR
64K RAMCard $289 MICROSOFT	CROSSTALK $139 MICROSTUF	TIM III $399 I.S.I.

CONDOR COMPUTER®
CONDOR 20-I $229
CONDOR 20-II 495
CONDOR 20-III 795
CONDOR 20-R 249
CONDOR 20-Q 139

DIGITAL RESEARCH®
MAC 85
SID 65
ZSID 90
TEX 90
DESPOOL 45
PL/1-80 419
BT-80 175
CBASIC 2 99
CB-80 419
PASCAL MT+ 419
COMPILER ONLY 309
SPP ONLY 189
RMAC 175
LINK-80 90
XLT 86 139

FOX & GELLER®
QUICKSCREEN $139
dUTIL 69
QUICKCODE 229

F.Y.I.®
SUPERFILE 169

LEXISOFT®
SPELLBINDER 279

MICROCRAFT®
LEGAL BILLING 495
TIME BILLING 495
LEGAL BILLING Demo 75
TIME BILLING Demo 75

MICROPRO®
WORDSTAR 289
MAILMERGE 89
SPELLSTAR 159
DATASTAR 249
CALCSTAR 145
SUPERSORT 190
Customization Notes 349
WORDMASTER 119

MICROSOFT®
BASIC 80 ..... $284
BASIC COMPILER 325
FORTRAN 80 345
COBOL 80 569
MACRO 80 144
EDIT 80 84
M-SORT 144
MULTIPLAN 239
MU MATH/MU SIMP 219
MU LISP/MU STAR 149
Z-80 SOFTCARD 269
PREMIUM PAK 699
64K RAMCard (IBM) 289
128K RAMCard (IBM) 429
192K RAMCard (IBM) 609
256K RAMCard (IBM) 699
64K RAMChip (IBM) 139

MICROSTUF®
CROSSTALK 139

MICROTECH EXPORTS®
REFORMATTER 199

PERFECT SOFTWARE®
PERFECT WRITER $239
PERFECT SPELLER 145
PERFECT FILER 289
PERFECT CALC 149

PICKLES & TROUT®
CP/M (TRS-80) 179
CP/M HARD DISK 259

SOFTWARE DIMENSIONS®
ACCOUNTING PLUS ..... CALL

STANDARD SOFTWARE®
THE PROTECTOR 239
MAILDROP 129

SUPERSOFT®
DISK DOCTOR 84
DIAGNOSTICS 49
C COMPILER 199
FORTH 169
SSS FORTRAN 199
ADA 229
SCRATCHPAD 229
DATA-VIEW 169
STAT-S-GRAPH 229
MACRO I 59

ORDER INFO.
AMERICAN EXPRESS, MASTERCHARGE, VISA, C.O.D.
3% DISCOUNT ON PREPAYMENT MADE BY CHECK (SOFTWARE ONLY)
ALL ITEMS SUBJECT TO AVAILABILITY AND PRICE CHANGE

LARGEST SELECTION OF CP/M® SOFTWARE IN THE U.S.A.

CP/M® is a Trademark of Digital Research

standard software
CORPORATION OF AMERICA
10 MAZZEO DRIVE, RANDOLPH, MA. 02368
617-963-7220
800-343-0852
Home of MICRO-PRICING™

Hours: Mon.-Fri. 8 a.m.-8 p.m., Sat. 9 a.m.-4 p.m. E.S.T.

PURCHASE ORDERS ACCEPTED FROM QUALIFIED CORPORATIONS AND INSTITUTIONS

5% off everything now thru Dec. 25.

How to sell software by the numbers.

Some timely advice to dealers from the one wholesale source you can count on.

Give your customers a good value.

And nothing helps you do that better than getting the best wholesale price. At Software Wholesalers, we guarantee you the lowest possible price on our entire selection of top selling CP/M,* Apple,* and IBM PC software. With generous dealer discounts that start with the very first program you order. Plus our liberal software return policy lets you return any unopened package within 30 days for a full cash refund, or within 90 days for merchandise credits.

Have the right selection.

Now maybe you can't carry nearly every program your customers might want, but *we* can. In fact, at Software Wholesalers, we carry over 350 brand name titles including all the best sellers from Ashton-Tate,* MicroPro,* Microsoft,* Digital Research* and many, many others. We've got 8" and all the popular 5¼" formats including NorthStar, Televideo, Vector and Altos. And a truly in-depth stock means the program you need tomorrow is probably on our shelves right now.

Deliver. And deliver on time!

If that means tomorrow morning, then tomorrow morning it is. Overnight express is no problem at Software Wholesalers. But even at the very least, we process every dealer order the same day we get it, and ship all in-stock items the next. And in the unlikely event we don't have what you need on hand, we'll either get it for you last ourselves, or help you find someone else who can.

Be ready to back-up what you sell.

If your customer has a problem, he's coming back to you. That's when you come back to us. Here at Software Wholesalers, you'll find one of the top tech-support teams in the nation. Computer professionals with sound answers to the toughest questions. Just pick up the phone and call our toll-free number. And while you're on the line, ask about our complete literature program, our timely product updates, and our ongoing evaluations of all the promising new products.

We think it all adds up. For price, selection, delivery and support, you can count on Software Wholesalers.

Call us today and join the growing number of successful dealers who now sell software by the numbers...very, very big numbers.

Software Wholesalers, Inc.

West Coast Office	*East Coast Office*
1-600-525-2552	**1-800-633-1000**
1-415-459-0740	**1-617-961-3171**
1299 Fourth Street, Suite 309C San Rafael, CA 94901	York Plaza, Route 139 Randolph, MA 02368

Hours: Mon-Fri: 8a.m.-8p.m. Sat: 10a.m.-4p.m. EST
Call for our complete catalog and a dealer kit.

* signifies manufacturer's trademark.

New software announced for the Timex/Sinclair 1000

By David Needle, IW Staff

Mindware Incorporated, the first company to market a printer for the Sinclair ZX81 and Timex/Sinclair 1000 computers in the United States, recently announced a series of 20 "quick-loading" software packages for the machine.

Among the programs Mindware is offering for the $99 Model 1000 computer are six business titles—an electronic spreadsheet, data-base management, word processing, inventory control, forecasting/graphs and video slide-show software.

Mindware's software for the Timex/Sinclair 1000

The Mindware software includes a proprietary Quickload feature that the company claims can load its programs up to four times faster than conventional Timex/Sinclair software.

"Quickload verifies whether or not the computer is loading properly, which solves a significant problem inherent in the Timex/Sinclair 1000 design," noted Mindware president Michael Levy. If information is lost, the screen goes blank, allowing the user to rewind the program only a short way and resume input, he added.

The Mindware software selections also include two engineering programs, three advanced programming aids and nine games.

Mindware, based in Natick, Massachusetts, obtained exclusive U.S. distribution rights for most of its software from companies in the United Kingdom that have been marketing software for the ZX81 since shortly after the machine was first introduced there last year.

Low price

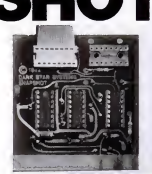
According to Levy, Timex expects to sell at least 350,000 Timex/Sinclair 1000 computers in the U.S. by the end of 1982.

A Mindware official said the software series, priced between $9.95 and $24.95, will be distributed primarily through mass merchandisers and some computer retailers and will be available to consumers this month. ■

SNAPSHOT™

THE FIRST...AND STILL THE BEST

SNAPSHOT, the original Apple copy card, backs up programs that baffle traditional nibble copiers like Locksmith. What's more, SNAPSHOT does it without any complex parameter changes or trial-and-error tedium. And SNAPSHOT is still less expensive, more effective, and easier to use than its imitators.



COMPARE THE PRICE!

$129.95 FOR WILD CARD
$149.95 FOR CRACK-SHOT (ALIAS REPLAY)

SNAPSHOT: STILL $109.95

COMPARE THE PERFORMANCE!

Theirs:	Brand new and unperfected. One has had long shipping delays while technical kits were treated.
SNAPSHOT:	Tried and tested. SNAPSHOT has been a best-seller in England since early 1982, and is guaranteed reliable. SNAPSHOT users report almost no technical problems of any sort, ever.
Theirs:	One requires you to remove your language card (and more); another has had incompatibility problems with a wide range of peripheral cards, including hard disk cards, synthesizers, and clock cards; one requires Applesoft on the motherboard.
SNAPSHOT:	Compatible with 95% of all 16K cards in use, and all other peripheral cards. Works with Apple II or II+, or Franklin. SNAPSHOT can all in any slot.
Theirs:	Require extra disk swaps, booting of system disks, and processing before the backup may (or may not) be capable of booting on a 48K system without a copy card in place.
SNAPSHOT:	Most backups boot *right* away on any 48K system (without a SNAPSHOT card).
Theirs:	You have to hop around to multiple menus to produce a bootable backup copy.
SNAPSHOT:	One simple menu. Easy 1-2-3 copy procedure.

SNAPSHOT has many more features for programmers, gamesters, and more. Write for our info packet or leave your address and questions with our answering service at (413) 584-7600. We regret that we cannot return all calls.

TO ORDER: Mail check payable to Dark Star Systems. Add $3 for shipping in the U.S. ($7.50 to Canada; $15 elsewhere). Mass. residents add $5.50 tax. COD costs $5 extra (not available outside U.S.).

Apple, ProDOS, Crackshot and Locksmith are reg. trademarks respectively of Apple Computer, EastSide Software, Pirate's Harbor and Omega Microware

Dark Star Systems

P.O. Box 140, Dept. I, Amherst, MA 01004

Industry hails SyQuest's 3.9-inch hard-disk drive

By John Markoff, IW Staff

LAS VEGAS, NV—The impact of new hard-disk technologies was apparent at the 1982 COMDEX, and one of the most popular new disk drives in both portable and new slim-line desktop computers appears to be SyQuest's SQ306 3.9-inch Winchester drive, which has five megabytes of storage and a removable cartridge. As many as 40 manufacturers are integrating the new drive into their systems.

First unveiled at the National Computer Conference in Houston earlier this year and billed as a "low-cost" Winchester, the SyQuest drive was introduced as an add-in for the IBM PC and other computers from a number of manufacturers at COMDEX.

Tecmar, an IBM peripheral manufacturer based in Cleveland, is offering the SyQuest in an internal configuration that uses the existing IBM Personal Computer power supply. The Tecmar drive is priced at $1795. The Tecmar system permits disk sharing for up to four IBM PCs.

Davong Systems of Mountain View, California, is offering the SyQuest drive as a backup system for its external hard disk for $1495.

Jonos, a San Diego portable-computer manufacturer, is also offering a version with the SyQuest drive, and another manufacturer plans to announce it as an add-in for the Osborne computer.

Larry Sarisky, SyQuest vice-president of marketing, said that the key technology in the new drive was a plated medium, called ChromaFlux.

Sarisky said that because the new plating technique was significantly harder than conventional media coatings, the new disk was virtually immune from head crashes. He called the bit density and other design aspects of the new drive "conservative."

The drive is currently a scarce commodity, according to several manufacturers who are integrating it into their systems.

Sarisky said that SyQuest is now producing 25 drive units a day and plans to expand production to 2300 a month by early next month.

The removable cartridge will sell for $50. ■

IBM drops charges against one of its former employees

By Deborah Wise, IW Staff

International Business Machines Corporation amended a suit it filed recently, that asserted three former employees had stolen trade secrets for the IBM Personal Computer, to include charges that two of the defendants had served as consultants to a competitor while they were employed by IBM.

In addition, IBM said it has dropped charges against the third former IBM employee as a result of an out-of-court settlement.

In the initial suit, filed in September, IBM claimed that three employees had tried to sell trade secrets for the IBM Personal Computer and, while they worked for IBM, had formed a company, Bridge Technologies, Inc., to produce competitive products.

IBM's amendment, filed in a New York state court, charges two of the defendants, Lewis C. Eggebrecht and Peter J. Stearns, with acting as paid consultants to Syntrex Inc. of Eatontown, New Jersey, a maker of word-processing equipment. IBM claims Stearns and Eggebrecht gave Syntrex information that it could use to compete with IBM's word-processing products.

IBM dropped charges against William W. Erdman, stating that "Erdman, without admitting liability, has consented to a permanent injunction prohibiting him from revealing or using IBM confidential information or trade secrets."

Erdman also agreed to pay back "a portion of his salary, to make full disclosure to IBM's counsel about his activities with the other defendants, and to testify at the trial," IBM said.

No trial date has been set. ■

if you use **CP/M**® then you need **DISK FIX!**

DISK FIX is a disk editor which can display, edit or copy any sector of a CP/M floppy and/or hard disk. The DISK FIX utility can be used to recover files from disks with damaged directories, to reconstruct files with bad sectors, to restore erased files and to do general disk editing.

DISK FIX automatically configures to floppy and hard disks, just insert the program disk and it is ready to run. A single CPU license is available for $150.

Call our software HOT LINE 906/228-7622.

The Software Store
706 Chippewa Square • Marquette MI 49855

Powerful CP/M Software.

For Apple, Osborne, TRS-80, North Star, SuperBrain, Micropolis, Altos and others.

Now only $29.95 each!

NEVADA COBOL

was $199.95 now only **$29.95.**

When we introduced Nevada COBOL three years ago, it was loaded with innovations. Today's Edition 2 is even better! For example:

☐ It's 4 to 20 times faster than any other micro COBOL according to an independent study*. What's more, it's easier to use.
☐ Extremely Compact. You can compile and execute up to 2500 statements in 32K RAM, 4000 statements in 48K, etc.
☐ It's based upon the ANSI-74 standards with level 2 features such as compound conditionals and full CALL CANCEL.
☐ You get a diskette, 153-page manual with lots of examples and 16 complete COBOL source code programs.

NEVADA PILOT

was $149.95 now only **$29.95.**

☐ Perfect for industrial training, office training, drill and testing, virtually all programmed instruction, word puzzle games, and data entry facilitated by prompts.
☐ What's more, John Starkweather, Ph.D., the inventor of the PILOT language, has added many new features to Nevada PILOT. There are commands to drive optional equipment such as Video Tape Recorders and Voice Response Units. There's a built-in full-screen text editor and much more.
☐ Meets all PILOT-73 standards for full compatibility with older versions.
☐ You get a diskette, 114-page manual and ten useful sample programs.

NEVADA FORTRAN

was $199.95 now only **$29.95.**

☐ IF . . THEN . . ELSE constructs.
☐ COPY statement.
☐ A very nice TRACE style debugging.
☐ 150 English language error messages.
☐ You get a diskette, 174 pages of Documentation and five sample programs.

NEVADA EDIT

was $119.95 now only **$29.95.**

☐ A character-oriented full-screen video display text editor designed specifically to create COBOL, BASIC and FORTRAN programs.
☐ Completely customizable tab stops, default file type, keyboard layout and CRT by menu selection.
☐ The diskette comes with an easy to read manual.

To make our software available to even more micro users, we ve slashed our prices What's more, we're offering a money back guarantee. If for any reason you're not completely satisfied, just return the package—in good condition with the sealed diskette unopened—within 30 days and we ll refund your money completely

This is a limited time offer, so order yours today!

Shipping/handling fees Add $4.00 for first package and $2.00 each additional package. OVERSEAS Add $15.00 for first package and $5.00 each additional package. Checks must be in U.S. funds and drawn on a U.S. bank!

* A Compiler Benchmark: A Comparative Analysis of Four COBOL Compilers" by Stephen F. Wheeler. Trademarks: CP/M, Digital Research; TRS-80, Tandy Corp.; Apple II, Apple Computer Inc.; Osborne 1, Osborne Computer Corp. © 1982 Ellis Computing

ELLIS COMPUTING

MAIL TODAY! To: Ellis Computing (415) 753-0186
3917 Noriega St.
San Francisco, CA 94122

The CP/M operating system and 32K RAM are required.

Indicate diskette format: ☐ 8" SSSD
5¼" ☐ Apple CP/M ☐ Osborne ☐ N*SD ☐ N*DD
☐ TRS-80 Mod I ☐ Micropolis Mod II
☐ TRS-80/mapper ☐ Superbrain DD DOS 3.X

Indicate software packages: ☐ COBOL ☐ PILOT
☐ FORTRAN ☐ EDIT

Send my order for ____ packages @ $29.95 each Total ____
In CA add sales tax ____
☐ Check enclosed ☐ COD Shipping/handling ____
If COD add $4.00 ____
☐ MasterCard ☐ VISA TOTAL ____

____ Exp. Date ____
Signature ____ Phone # ____
Ship to:
Name ____
Company ____
Street ____
City/St/Zip ____
Country ____
Offer expires 12/31/82

Child experts dispute surgeon general's stance on video games

PITTSBURGH, PA—U.S. Surgeon General C. Everett Koop recently addressed a conference of public-health workers at the Western Psychiatric Institute and Clinic, University of Pittsburgh, on the topic of family violence. After characterizing intrafamily violence as epidemic and citing alarming statistics detailing the high incidence of child abuse, spouse abuse and the abuse of the elderly, Dr. Koop called for "primary prevention programs" jointly sponsored by the Justice Department, local public-health departments and pediatricians. During a news conference following his lecture Koop specifically identified the main contributing factors to intrafamily violence as violence on television, video games and the country's poor economic conditions.

In reference to video games, Koop said that children "are into [the games] body and soul—everything is zapping the enemy. Children get to the point where when they see another child being molested by a third child, they just sit back." Koop implied that children have become accepting of violence.

Regarding the influence of television, Koop stated that "kids are great mimics." He mentioned the violence on TV, and the large amounts of time Americans spend watching TV. To illustrate his "mimicking behavior" theory, he cited the 34 children that became paraplegics as a result of failed attempts to copy the dubious achievements of motorcyclist Evel Knievel, "whose stunts were exhaustively reported by television, complete with slow-motion instant replays." Koop did not link these particular occurrences to family violence, though.

Finally, the surgeon general attributed the tensions produced by the economic situation as also responsible for family violence. "In times of economic distress, there is a higher incidence of child abuse and spouse abuse," he said.

InfoWorld spoke to several child-abuse experts on their reactions to Dr. Koop's comments.

Economic factor

Dr. Judy Martin, Ph.D., head children and youth specialization at the School of Social Work, University of Pittsburgh, and is an author and expert on child abuse.

"It is positive that the surgeon general mentioned the impact of the economy upon the incidence of child abuse. I consider this to be a major factor in the increasing rate of family violence. During these times, both parents experience stress from unemployment, declining purchasing power and the frustrations of being unable to control their future.

"These are times when families cannot purchase such services as private counseling and daycare, thus creating both the probability and opportunity to abuse family members.

"As to TV, there is some research that does indicate that violence on the screen affects behavior, but I know of no research that implicates video games. Of more concern is the general societal acceptance of violence."

Dr. Alexander Zaphiris, J.D., Ed.D., is the associate dean of the School of Social Work at the University of Houston. He is a recognized authority on child abuse and the 1976 winner of the American Humane Association special award for his work on child abuse.

"Media is one of many possible variables identified with the causation of child abuse. Some view violence on TV as an outlet for pressures, and others see it as a reinforcement for the behavior. To consider TV, video games and the economy as the major forces is very restrictive.

"Not having personally played video games but reading of their strategy, they do seem to overly identify with aggressive behavior. Their impact upon family violence is speculative. We must follow these game players through their life cycle to see if they are abusive adults.

"Further, these games are a recent phenomenon of the past two or three years and can not account for the history of family violence."

Gary Koeske, Ph.D., and Randi Koeske, Ph.D., are social psychologists at the University of Pittsburgh who own a home computer.

"The relationship between violence depicted on TV and child behavior has been well researched during the past 20 years. This relationship has been established through experimental research and other designs. While these findings are often extended to cover films, it is premature to consider video games also an example of this relationship.

"There is no empirical knowledge to document that TV and video games are alike in this respect. As parents and scientists we find this to be an interesting question, one that is researchable, but, remember, many games such as adventure games foster the development of logic and problem-solving skills.

Sports more violent

"The question of children becoming immersed in video games may be problematic, but the violence in sports is of more concern than video games. The most foreseeable violence associated with video games occurs when children fight for a turn to play Atari."

Dr. Timothy Burke, M.D., is a psychiatrist in private practice in Louisville, Kentucky. "I am surprised that someone would say this—it may be true, but [video games are] a new factor in

See Child experts, page 15

EASY-TO-USE APPLE II SOFTWARE
FOR TELECOMMUNICATIONS
AND DATA TRANSFER

DATA*TRANS

Compare DATA*TRANS with its competitors:

Features	DATA*TRANS	DATA CAPTURE 4.0	ASCII EXPRESS	TRANSEND 2	VISITERM
Automatic logon access	ALL SERVICES	NO	LIMITED	LIMITED	NO
Transmission baud rate	300/1200	300	300	300/1200	300
Time to load 18K text	21 sec.	89 sec.	70 sec.	83 sec.	CAN'T LOAD
Quick scan of textfile	YES	NO	NO	NO	NO
Converts for VisiCalc	YES	NO	NO	NO	NO
Maximum # of lines	NO LIMIT	500	800	NO LIMIT	NO LIMIT
Line/Memory counters	BOTH	LINE	NO	NO	MEMORY
# Text Editor commands	9	3	6	2	1
Auto-answer: # re-calls	NO LIMIT	1	1	1	1
Simult. Copy/List/Print	ALL THREE	COPY ONLY	COPY/PRINT	ALL THREE	COPY ONLY
Remote control of Apple	YES	NO	NO	NO	NO
# phone numbers	NO LIMIT	0	18	4	0
Menu Access Delay	0 sec.	0 sec.	0–9 sec.	0–10 sec.	0 sec.
Frequency of Menu change	FEW	SOME	SOME	FREQUENT	SOME
Displays control characters	YES	NO	NO	NO	YES
Prompted transmission	YES	NO	YES	NO	NO

AUTO LOGON—With a few keystrokes, you can auto-dial and log on to Dow Jones News/Retrieval, the Source, and other services. No more phone numbers, ID's, account numbers and passwords to remember.

VISICALC, VISIPLOT, VISITREND LINKAGE—Conversion of any data to the required format for input to the Visi-series. Transfer of VisiCalc files among computers.

Auto-Dial/Auto-Answer, Remote Operation and a Powerful Editor.

SIMPLY THE BEST—Fast • Reliable • Versatile • Easy to use.

Three configurations on one disk at one price: 300 baud, 1200 baud, 40 and 80 column—$100. For the Apple II. Available from your local Apple dealer or directly from Abt Microcomputer Software (add $2.00 for shipping)

Hardware supported: Micromodem II, Smart Modem, SSM AIO Card, SSM AIO II Card, Apple Communications Card, Videx Videoterm 80-Column Board.

ABT
MICROCOMPUTER SOFTWARE

A division of Abt Associates Inc., Dept. DTI, 55 Wheeler St., Cambridge, MA 02138
Telephone (617) 492-7100

Apple II is a trademark of Apple Computer, Inc. Transend and SSM AIO are trademarks of SSM Microcomputer Products, Inc. Data Capture 4.0 is a trademark of Southeastern Software. VisiCalc, Visitrend, VisiPlot and VisiTerm are trademarks of VisiCorp. ASCII Express is a trademark of Southwestern Data Systems. Micromodem II and Smart Modem are trademarks of D.C. Hayes Inc. Videoterm is a trademark of Videx, Inc.

IBM PERSONAL USERS

JOIN

PERSONNA COMPUTER ASSOCIATION INC.

THE NATIONAL ASSOCIATION FOR USERS OF THE IBM PERSONAL COMPUTER

THE BEST MEMBER BENEFITS YOU'VE EVER SEEN!

- Discounts of 10 – 30 on Supplies
- Discounts on Peripherals
- Discounts on Software
- Monthly Newsletter

"PERSONNALITY" FEATURES:

1. FREE PROGRAMS
2. New Compatible Products
3. New Software
4. Reduced Advertising Rates for Members
5. For Sale — Classified

SEND $45 IN CHECK OR MONEY ORDER FOR 1 YEAR MEMBERSHIP (AND INCLUDE YOUR NAME AND STREET ADDRESS) TO: PERSONNA, P.O. BOX 759, POINT PLEASANT, N.J. 08742

START ENJOYING OUR BENEFITS AS SOON AS YOUR MEMBERSHIP KIT ARRIVES.

SAVE $20.00! ALL NEW MEMBERS RECEIVE $20 COUPON FOR SUPPLY PURCHASE.

NEWSLETTER ONLY:
Prepaid U.S. $18/yr., Canada $40/yr., Worldwide Air Mail $75/yr.
Introductory Offer (U.S. only) 3 ISSUES $2

Players claim games release, not cause, tension

By Kathy Chin, IW Staff

Reactions to the U.S. surgeon general's claim that video games are a chief cause of family violence were met with disbelief and snickers at the recent Applefest computer convention held in San Francisco.

"I think people generally play games to release tension," said Don Fudge, head programmer at Avant-Garde Creations in Eugene, Oregon. "All those tensions are released in the arcade parlor rather than in the home."

The programmer, however agreed that there are too many games based on greed, suspicion and violence. Fudge, a Vietnam veteran, said it was against his personal philosophy to shoot or harm anyone.

"I would like to see adventure games become more constructive." A possible theme for a game, he suggested, would be "defending the world, instead of destroying it.

"The ideal game is where you never have to shoot first," he said.

Fudge noted that people who do not plug their quarters into game machines might use the money to buy dope and other drugs. "It's a good substitute for bad vices," he said.

U.S. Surgeon General C. Everett Koop stressed that the games make the players impassive to violence.

"When you are glued to the television, you are passive," Fudge continued, "but in playing games, you get involved.

"You never see anyone more involved than in video games. On TV, violence is passive. You are sitting in your living room. In video games, even if you have bad ethics, you make a difference."

"I'm not convinced about what the surgeon general says," commented 24-year-old Joel Billings, president of Strategic Simulations in Mountain View, California. "I don't think video games make you insensitive to violence."

Billings' company produces a variety of adventure games. Some of them are war games, such as Southern Command, Torpedo Fire and the Road to Gettysburg.

"There are pacifists who are wargame players," he stressed. "There are war board games. In the games, you play off the computer, not people."

Billings notes that Strategic Simulation games develop math skills, analytical skills and logic skills, "like chess."

"Video games are only vices if they become addictive. There are worse things," added Billings.

"It doesn't affect me," said Mike McLaren, general manager for Sunnyside Software Distributors in Corvallis, Oregon. "Playing is a release of tension, not a buildup."

McLaren pointed to one game called Arsonist. The object of the game is to burn down as many buildings as you can without getting extinguished by the firemen. A small square on the screen represents the pyromaniac.

According to McLaren, a fire marshal in Oregon is spearheading a campaign to ban Arsonist throughout the state.

McLaren has played the Arsonist game several times, but says that it has not desensitized him to violence. "I don't get that impression. If it is more lifelike, then the impression is more real."

Although children were cautioned about the possible affects of video games upon their family life, they continued to play without any apparent fear or paranoia.

"I don't think it's hazardous," said 17-year-old Richard Beckman, "at least not to my health."

Beckman arrived at Applefest with a busload of students from Santa Cruz [California] High School. "I enjoy those games," he said. "It's only destroying something on the screen."

Thirteen-year-old Vince Monroe plays games one hour per day. "My parents don't mind. I don't feel violent after I play. I feel relaxed." ■

Child experts

continued from preceding page

understanding family violence without any research substantiation. Without a research foundation upon which to base this statement, I am distressed that a prominent person would claim such a relationship.

"The implied relationship between video games and the accepted research on violence on TV is questionable. Most games do not involve characters from reality. There exists some question to this proposed process of personification of such video creatures."

This proposed influence can only account for family violence that has occurred during the last few years since video games appeared. The position of Koop does not account for the fact that most child video junkies are from the middle and upper classes, persons who have the money to play the quarter-a-turn game. Therefore, Koop does not explain the violence that occurs in families without financial means to play these games. ■

Guaranteed: Unmatched Print Control.

Micro-Ap's new Selector V, Version 2.

We guarantee that Selector V™ Version 2. outproduces dBase II,® Condor 3,™ and FMS-80™:

- Flexible on-line query.
- Tireless label production: 1 to 8 across, 1 to 250+ lines each, self-compacting—1 to 99 copies.
- Fabulous formatting. Control all 7 page makeup components, including title pages and comprehensive summaries. Multi-page invoices any size.
- Effort columnar reports. Automatic nested subtotals include day/month/year agings.
- Multi-key, multi-file operations in one pass—fully relational.
- CP/M-80,® CP/M-86,® MS-DOS.™

☐ YES. I'll take you up on your guarantee. Send Selector V, Version 2. Only $900. Risk-free, 30-day money-back guarantee (check, or credit card number enclosed).
☐ Send information on Direct-to-Dealer distribution.

NAME ____ TITLE ____
COMPANY/INSTITUTION ____ DEPT ____
ADDRESS ____ PHONE ____
CITY ____ STATE ____ ZIP ____
COMPUTER MFG ____ MODEL NO ____ DISK SIZE/FORMAT ____
☐ VISA ☐ MasterCard ☐ American Express:
CARD NUMBER ____ EXP DATE ____
SIGNATURE ____

IW1123

The new Selector V outmaneuvers Condor 3, dBase II and FMS-80.

Selector V™
Relational Applications Management Software

Micro • Ap Inc.
7033 Village Parkway, Suite 206 Dublin, CA 94566 (415) 525-6697

dBase II is a trademark of Ashton-Tate. Condor 3 is a trademark of Condor Computer. FMS-80 is a trademark of DJR Associates. CP/M-80 and CP/M-86 are trademarks of Digital Research, Inc. MS-DOS is a trademark of Microsoft.

Keynote D takes charge of key and lock security

By Kathy Chin, IW Staff

Last year the University of Rhode Island in Kingston, Rhode Island, had an immediate problem: School officials called the student center an uncontrolled liability because of inadequate key and lock security.

The student center, which houses the university credit union, the student store and other businesses, is operated solely on its profits and does not receive state funding.

With so much money invested in goods and equipment, university leaders turned to management consultant Ed O'Connell, president of Key 1 Computer Systems in Newport, Rhode Island, for a solution.

"I looked around for different systems such as paperwork systems, tagging or marking keys, but nothing seemed to work," he said.

After studying key and lock procedures at various companies, O'Connell noted that corporate heads were embarrassed to find out they had no comprehensive tracking system. At the University of Rhode Island, no one knew who had the keys to the student-union alarm system.

"Out of 30 companies and organizations," he said, "no one had a solution for these keys. One company had 18 security locks but only 12 keys."

This need led to the development of Keynote D, a computerized management program designed to alleviate unnecessary paperwork used for key and lock security.

On the market as of November 1, the $6500 product includes a TRS-80 computer equipped with two disk drives, a printer, software and a manual.

"We want people to deal with security. They should not have to be concerned with computers," he said. O'Connell added that the user would have all the necessary accessories at his fingertips.

Keynote D provides lists of all keys under a master lock, all keys for each room, all holders of a named key and all locks from each manufacturer. Data and functions are on line at all times.

"In a 250-member organization, it's not uncommon to have 1000 locks," he said. "And everything seems to depend on keys; you can have as many as 2800 keys. The information access to the lock system is critical."

The product is geared towards workers in hospitals, colleges, janitorial and security services and defense-contracting firms. He stated that insurance companies have also expressed interest.

With the interactive program, users can issue keys to an employee; switch keys; add new keys to the roster; and label and identify lost keys.

The 16-function menu features eight procedural functions such as retrieve, add or delete and eight utility functions such as list, search and print summaries. Five levels of security access are available for specific needs.

The unit can store memory for up to 2000 locks, 14,000 circulating keys and up to 70 copies of each key.

Keynote D gives simple instructions so that the person at the keyboard does not have to be familiar with computers to use the system. O'Connell suspects that the users will include security operators, building managers and facility engineers.

Key 1 has been in existence for one year and is run by three individuals—a security agent, a computer programmer and O'Connell. "I got involved with computers as a buyer," he said. "As a consultant, I had to spec out computer systems."

"We look at this product from the users' standpoint. We produce the solution and then block out the software. Then, we decide which is the best hardware economically," O'Connell added.

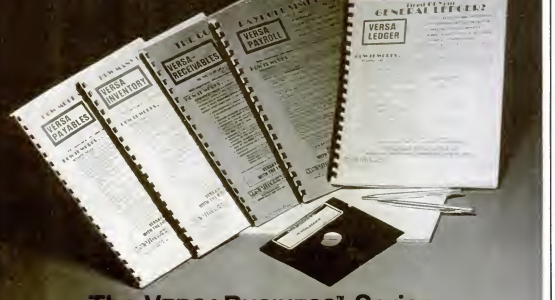
O'Connell is testing similar packages such as fleet-vehicle management, employee-scheduling-forms management and tool control, all designed for schools and businesses.

The next product, according to O'Connell, will be Keynote M. The entire system will be comparable to Keynote D, but will operate on a different computer that has more storage capacity.

The president said corporations that have as many as 1000 keyholders will benefit from his second software offering in January. ■

Introducing the Most Powerful Business Software Ever!

TRS-80™ (Model I, II, III, or 16) • APPLE™ • IBM™ • OSBORNE™ • CP/M™ • XEROX™



The VERSABUSINESS™ Series

Each VERSABUSINESS module can be purchased and used independently, or can be linked in any combination to form a complete, coordinated business system.

VERSARECEIVABLES™ $99.95
VERSARECEIVABLES™ is a complete menu-driven accounts receivable, invoicing, and customer statement program. It will keep track of all customer information related to who owes how much money, and can provide automatic billing for past due accounts. VERSARECEIVABLES™ prints all necessary statements, invoices, and summary reports and can be linked with VERSALEDGER II™ and VERSAINVENTORY™.

VERSAPAYABLES™ $99.95
VERSAPAYABLES™ is designed to keep track of current and aged payables, keeping you in touch with all information regarding how much money your company owes, and to whom. VERSAPAYABLES™ maintains a complete record on each vendor, prints checks, and keeps a history of all transactions, reports, aged payables reports, vendor reports, and vendor labels. VERSAPAYABLES™ you can even let your computer automatically select which vouchers are to be paid.

VERSAPAYROLL™ $99.95
VERSAPAYROLL™ is a powerful and sophisticated, but easy to use payroll system that keeps track of all government required payroll information. Complete employee records are maintained and all necessary payroll calculations are performed automatically, with totals displayed on screen for operator approval. A payroll can be run totally automatically, or the operator can intervene to prevent a check from being printed, or to alter information on it if desired. totals may be posted to the VERSALEDGER II™ system.

VERSAINVENTORY™ $99.95
VERSAINVENTORY™ is a complete inventory control system that gives you instant access to data on any item. VERSAINVENTORY™ keeps track of all information related to what items are in stock: out of stock, on backorder, etc., stores sales and pricing data, alerts you when an item falls below a preset reorder point, and allows you to enter and print invoices directly on-line with the VERSARECEIVABLES™ system. VERSAINVENTORY™ prints all needed inventory listings, reports of items below reorder point, inventory value reports, period and year-to-date sales reports, price lists, inventory checklists, etc.

VERSALEDGER II™ $149.95
VERSALEDGER II™ is a complete accounting system that grows as your business grows. VERSALEDGER II™ can be used as a simple personal checkbook register, expanded to a small business bookkeeping system or developed into a large corporate general ledger system without any additional software.
- VERSALEDGER II™ gives you almost unlimited storage capacity (300 to 10,000 entries per month, depending on the system),
- stores all check and general ledger information forever,
- prints tractor feed checks,
- handles multiple checkbooks and general ledgers,
- prints 17 customized accounting reports including check registers, balance sheets, income statements, transaction reports, account listings, etc.

VERSALEDGER II™ comes with a professionally written 160 page manual designed for first time users. The VERSALEDGER II™ manual will help you become quickly familiar with VERSALEDGER II™, using complete sample data files supplied on diskette and more than 50 pages of sample printouts.

SATISFACTION GUARANTEED!
Every VERSABUSINESS™ module is guaranteed to operate with other compatible systems. If any VERSABUSINESS™ module does not operate with other VERSABUSINESS™ modules, you may return it within 30 days for a refund. Manuals for any VERSABUSINESS™ module may be purchased for $25 each, credited toward a later purchase of that module.

To Order:
Write or call Toll-free (800) 431-2818
(N.J. residents call 914-425-1333)
† add $3 for shipping in UPS areas — * add $5 to CANADA or MEXICO
† add $4 for C.O.D. on non UPS areas — add proper postage elsewhere

DEALER INQUIRIES WELCOME
All prices and specifications subject to change. Delivery subject to availability.

COMPUTRONICS
50 N. PASCACK ROAD, SPRING VALLEY, N.Y. 10977

* TRS-80 is a trademark of the Radio Shack Division of Tandy Corp. *APPLE is a trademark of Apple Corp. *IBM is a trademark of IBM Corp. *OSBORNE is a trademark of Osborne Corp. *CP/M is a trademark of Digital Research. *XEROX is a trademark of Xerox Corp.

COLORVERTER 1000
Convert your FRANKLIN ACE 1000 to a color computer in five minutes.
Easy to install!! No soldering!!
$49.95
Dealers invited.
Cash, check, money order, Mastercard or Visa
Order now from
COLORVERTER
P.O. Box 8928
Boston, MA 02114
617/232-1247
Warranty and F.T.C. requirements of FRANKLIN COMPUTER CORP.
The product is NOT produced or endorsed by FRANKLIN COMPUTER

THOUSANDS OF CP/M® SOFTWARE PACKAGES ARE GATHERING IN SAN FRANCISCO...

CP/M '83®

Sponsored by
DIGITAL RESEARCH™
The Creators of CP/M™

Moscone Center, San Francisco
Friday-Sunday, January 21-23, 1983
Show hours: **11 AM to 6 PM Daily**
Seminars (for the trade): 9 AM to 11 AM
User Conferences and Workshops: 11 AM to 5 PM

Beginning January 21 your CP/M computer will never be the same.
On January 21, you are going to discover an incredible world of software, services and support for your CP/M computer. January 21 marks the beginning of CP/M '83 . . . a 3-day-long international extravaganza for CP/M users. For the first time ever, you'll be able to learn about, try out and compare literally thousands of products for your system. All of the CP/M support companies . . . large and small . . . will be there, demonstrating the newest, most innovative CP/M products. Leading authorities from the software industry will run dozens of in-depth seminars and workshops to help you explore the full potential of your CP/M computer.
CP/M '83 will actually be the *largest first-year computer show in history!* More than 25,000 CP/M users from around the world will view nearly 700 exhibits and attend more than 100 workshops.

The World Under One Roof
At CP/M '83, you will find everything new for your CP/M computer under one roof. In a couple of days, you can sample software, accessories and services for every conceivable application you may have. You can talk to experts and learn about both the features *and* limitations of these products. You can "test drive" software and purchase it right at the show . . . at special show prices. You can attend seminars, workshops and panel discussions, presented by the most renowned authorities in the software field, and learn how to make your computer more productive and more powerful.

The World's Leading CP/M Experts
CP/M '83's Conference and Seminar program will include noted leaders from the industry including Gary Kildall, President, Digital Research Inc.; Sol Libes, Editor, Micro Systems Magazine; Christopher Morgan, Editor-in-Chief, Byte and Popular Computing Magazines; Adam Osborne, President, Osborne Computer Corporation; Tony Gold, Founder CP/M Users Group and Liteboat Associates; Ben Rosen, President, Rosen Research; Portia Isaacson, President, Future Computing; Maggie Cannon, Editor in Chief, Info-World; David Crockett, Senior Vice-President, Dataquest; and Gordon Eubanks, Vice-President Language Div., Digital Research. CP/M '83's conference, seminar and workshop program is designed for computer tradespeople and users. These individuals, plus dozens of others, will conduct informative discussions exploring CP/M applications, technical information, development aids, venture capital programs and software distribution. End user workshops will show users how to get the most from their CP/M computer.

Low Hotel Rates
CP/M '83's Show Management has made special group discount arrangements with several of the hotels closest to Moscone Center.
The Hyatt on Union Square—415-398-1234—345 Stockton St.—new, modern, and four blocks from Moscone. CP/M '83's discount rates are $75 per night single, $85 per night double, versus their regular rates of $95 to $130 single and $130 to $165 double.

The Sheraton Palace Hotel—415-392-8600—639 Market St.—elegantly refurbished fine older hotel, and the closest hotel to Moscone—only one block. CP/M '83's special rates are $70 single and $80 double, versus their regular rates of approximately $90 single and $100 double.

The San Francisco Hilton & Tower—415-771-1400—333 O'Farrell St.—a modern facility located three blocks from the Show. CP/M '83's special rates are $75 per night single and $95 double, versus this Hilton's regular rates of $66 to $127 single, and $86 to $147 double.

The Holiday Inn on Union Square—415-398-8900—480 Sutter St.—a modern facility with all the conveniences, and located in the heart of San Francisco. This facility offers CP/M '83 attendees accommodations for $70 per night single and $80 per night double.

The Holiday Inn Financial District/China Town—415-433-6600—750 Kearny St.—this high rise Inn is six easy blocks to Moscone and offers CP/M '83's attendees single or double accommodation at $55 per night versus their regular rates of $78 to $92.

The Pickwick Hotel—415-421-7500—85 5th St.—Just two blocks from the Show, this fine hotel has clean modest accommodations, and is offering CP/M '83's attendees rates which are lower than motel rates. The rates are $30 per night single and $35 per night double, and can't be beat anywhere in town.

Hotel Reservation Request

1. For you to receive CP/M '83's special discount convention rates, all reservations must be made on this form, or a facsimile. The form must be completed in detail, including date and hour of arrival, date of departure, and names and addresses of all persons who will occupy the room. Reservations can not be processed without this information.
2. Indicate at least three choices of hotels and rates. Requested rates cannot be guaranteed, but the Housing Bureau will make every attempt to assign rooms as near as possible to the requested rate.
3. The Housing Bureau requires written reservations. Only late requests, after Friday, January 7, will be accepted by telephone. After Friday, January 14 try to make your reservations directly with the hotel, but be advised that the hotels are expected to be full by that time. The Housing Bureau telephone number is 415-626-5500.
4. Mail this hotel reservation request directly to CP/M '83 Housing Bureau, P.O. Box 5612, San Francisco, CA 94101, and *not* to National Computer Shows.
5. Confirmations will be sent from the Housing Bureau up to two weeks prior to the event. Allow up to two weeks for processing.
6. Cancellations. Notify the CP/M '83 Housing Bureau of all cancellations up to Friday, January 7. After January 7, make cancellations directly with the hotel. Changes. All other changes, such as arrival or departure times or changes in type of accommodations required, should be made directly with the hotels at all times.
7. Hotels will hold reservations only until 6 pm unless otherwise requested. If you are delayed in transit, phone ahead and advise the hotel of your arrival time. Reservations can be guaranteed to assure a room regardless of arrival time. However, if you do not pick up or cancel the reservation, you will be billed for one night's room rate. If you make a reservation, even a guaranteed reservation, it will be held only for that night. Thus, if you designate a Monday arrival and do not arrive until Tuesday, you will not have a room unless you notify the hotel beforehand.

A. Please make the following CP/M '83 hotel reservations
Hotel Choice
1st _____
2nd _____
3rd _____

B. Please enter my reservation at the hotel for
_____ single room(s) at $_____/ day
_____ double room(s) at $_____/ day
_____ twin room(s) at $_____/ day
_____ one bedroom suite(s) at $_____/ day
_____ two bedroom suite(s) at $_____/ day

C. Arrival date _____ time _____ ☐ am ☐ pm
Departure date _____ time _____ ☐ am ☐ pm
Occupant _____
Share With _____

D. Mail my confirmation to
Name _____
Firm (if any) _____
Address _____
City _____ State _____ Zip _____
Telephone (Area Code) _____

E. Complete this form and mail to CP/M '83 Housing Bureau, P.O. Box 5612, San Francisco, CA 94101

Show & Conference Preregistration Request

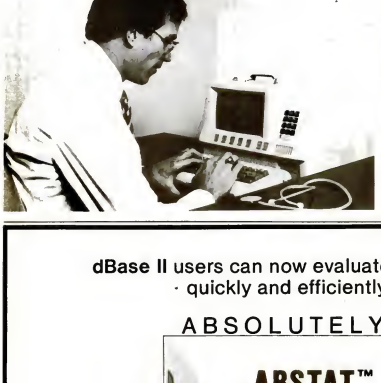
1. Complete this form (or a facsimile) and mail it with a check payable to CP/M '83 to The National Computer Shows, 822 Boylston Street, Chestnut Hill, MA 02167.
2. All preregistration requests must be received by Friday, January 14, 1983. No telephone or credit card orders can be processed.
3. Use a separate form for each person preregistering for a three day badge.
4. Badges and tickets will be mailed back to preregistrants, providing the order is received by Friday, January 7. For orders received after that date, badges and tickets will be held for pick-up at the preregistration desk at the Show.
5. It is recommended that attendees preregister. However, it is not necessary, as badges and tickets can be purchased at the Show.
6. Persons preregistered by January 7 receive an exhibits Conference & Seminar Schedule by return mail.

Name _____
Company _____
Address _____
City _____ State _____ Zip _____
Telephone (Area Code) _____

Check Applicable Box:
☐ Enclosed is my payment for _____ (quantity) one day, exhibits-only tickets at $10 each.
☐ Enclosed is my payment of $20 for a three day exhibits and conference ticket/badge. (Use duplicate copy to order more than one).

CP/M '83 is produced by Northeast Expositions, Inc., 822 Boylston Street, Chestnut Hill, MA 02167, Telephone: 617-739-2000.

For information on exhibiting or attending call or write.



New communications system bundles data and voice abilities

By John Markoff, IW Staff

Futurists like to claim that the blending of computer and communications technologies will take place during the next decade.

Basic Telecommunications Corporation of Fort Collins, Colorado, has attempted to get the jump on some corporate giants by designing a CRT terminal that incorporates both voice and data capabilities.

The DataVoice Desk Top Communications System bundles together a telephone, modem, CRT and standard QWERTY keyboard to provide office workers with the capabilities of both data and voice technologies.

DataVoice includes CRT, keyboard, telephone, modem, tape recorder

The system offers RS-232 and printer ports, clock and calendar with battery backup, auto-dialer and a tape recorder for voice messaging. Basic Telecommunications states that the DataVoice can automatically send and receive both voice and electronic mail.

Another DataVoice feature is a calendar that allows the user to keep records of meetings and appointments.

Additionally, the DataVoice has many of the capabilities of an intelligent telephone, including automatic dialing, a phone-number directory, redialer, auto-answer and speed dialing.

Examining the DataVoice gives the distinct impression that there's everything here but the kitchen sink.

In fact, the sink—or its equivalent—will be added soon. According to Chet Stephens, a marketing vice-president at Basic Telecommunications, a Z80 microcomputer will soon be added to the system to offer stand-alone computing capabilities.

As it is available now, DataVoice takes up roughly as much space as an office typewriter.

Basic Telecommunications also produces a telephone for the disabled, called the AbilityPhone. This is a microprocessor-based terminal that serves as both a communications device and an "environmental-control device." It is designed to offer more independence for the disabled.

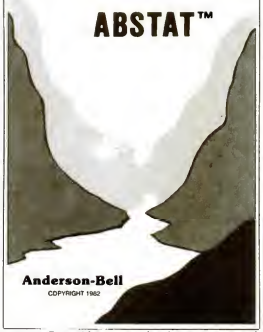
The AbilityPhone offers automatic answering, auto-dialing and redialing. There is also an optional voice synthesizer that can speak all keyboard and index items.

With the voice option, the AbilityPhone terminal can transmit a spoken emergency message or be programmed to periodically check on the user by asking, "Are you okay?" If there is no response within a specified time, the system automatically sends an emergency message.

The AbilityPhone comes with a 32-character display that can show dialing operations or index items. ■

dBase II users can now evaluate their data · quickly and efficiently.

ABSOLUTELY!



Whether you are using dBase II for accounting, inventory control, marketing or scientific applications, ABSTAT provides you with the ability to perform statistical data analysis with ease!

If you are not using dBase II, that's OK because ABSTAT is a stand alone package that can share data with other software through ASCII files.

ABSTAT facilities include full data manipulation and editing, on line help and comprehensive statistical procedures, including analysis of variance, cross tabulation, multiple regression, Z scores and much more.

Prices are only $395 for the complete package and $25 for a manual. A complimentary 8" demonstration disk is available on request with the purchase of a manual. Major credit cards accepted.

ABSOLUTELY the most flexible, simple yet comprehensive statistics and data analysis package available for CP/M based computers.

Anderson - Bell
5336 So. Crocker St.
Littleton, CO 80120
(303) 794-7509

ABSTAT is a trademark of Anderson - Bell • CP/M is a trademark of Digital Research • dBase II is a trademark of Ashton Tate

DEMO DISK NOW AVAILABLE ON 5¼" APPLE CP/M FORMAT

New directory shows growth, diversity in videotex industry

By John Markoff, IW Staff

MENLO PARK, CA—Do you want to know what the Kuwaitis are planning to develop in videotex technology? Or how about Czechoslovakia or Venezuela?

If you do, or even if you're only interested in knowing which domestic manufacturers are involved in videotex trials, then you may be interested in the *1982-83 Videotex Directory*, recently introduced as a joint publishing effort by The Institute For the Future, based in Menlo Park, California; and Arlen Communications, located in Bethesda, Maryland.

Priced at $150, the directory isn't

See Directory, page 20

IBM memory at realistic prices:

256K WITH AN RS-232C INTERFACE **$349**

$529 WITH SUPERCALC

512K WITH AN RS-232C INTERFACE **$579**

$749 WITH SUPERCALC

Both of these fully-populated memory boards include parity checking and a standard RS-232C interface. They are compatible with all IBM software.

You can expect these boards to meet the highest standards of design and manufacturing quality available — at any price. We are proud to guarantee them fully for a period of two years.

Alpha Byte COMPUTER PRODUCTS

31245 LA BAYA DRIVE
WESTLAKE VILLAGE, CA 91362

To order or for information call

In New York:
(212) 509-1923

In Los Angeles:
(213) 706-0333

In Dallas:
(214) 744-4251

By Modem:
(213) 883-8976

We guarantee everything we sell for 30 days — no returns after 30 days. Defective software will be replaced free, but all other software returns are subject to 15% restocking fee and must be accompanied by RMA slip. No returns on game software, unless defective.

We accept VISA and MasterCard on all orders; COD orders, up to $300.

Shipping charges: $3 for all prepaid orders, actual shipping charges for non-prepaids; $3 for COD orders under 25lbs. ($6 for over) plus a $4 surcharge; add 15% for foreign, FPO and APO orders. Calif. add 6% sales tax. L.A. County add 6½%.

Prices quoted are for stock on hand and are subject to change without notice.

Directory

continued from page 18

cheap, but it does give some indication of the widespread corporate and organizational interest in the videotex industry.

The directory is broken down into categories including system operators, hardware/software vendors, government agencies, trade associations, consultants and publications.

The new directory grew out of research and consulting that the Institute for the Future has been doing in the area of interactive communications.

"On the surface, it appears that not much is happening in videotex," says Richard Adler, a research associate at the Institute and one of the directory authors. Underneath, however, there is a tremendous degree of interest on the part of a diverse group of corporations," he adds.

Adler says the new developments in videotex technology have led to a widespread attempt by different corporations to poach on each other's traditional areas of business.

"Everybody suddenly realizes that they can get into everyone else's business," he says.

The outcome of the battle still isn't clear, however. "There are lots of joint ventures," Adler says, "but there are no sure winners and no one is sure how the pie will be sliced."

The state of the videotex industry is in such flux that Adler thinks that a decade from now the very name of the infant industry may have disappeared.

"It may be like the term 'wireless radio,'" he says, "in the 20s that term had connotations of the future, but who has heard the term *wireless* today?"

Oh, and incidentally, according to the directory, earlier this year the Kuwaitis sought proposals to establish a 2500-terminal, two-year videotex trial in the Middle East. Information will be stored and entered into the system in both English and Arabic, and individual videotex pages will be able to handle script in both languages. ■

P L U S

Accounting Plus II™ plus free Plus modules equals savings of up to $692.

Announcing the Plus Promotion from Software Dimensions.

You get Accounting Plus II, the professional quality Apple® accounting system, plus the versatility provided by the Plus packages. More value for new users at no additional cost. To participate, contact your local dealer for more information.

Accounting Plus II Module Purchase	GL Plus	Data Plus	Labels Plus	Invoices Plus	Save
General Ledger System	Free				$199
Two-Module System	Free	Free			$298
Three-Module System	Free	Free	Free		$397
Four-Module System	Free	Free	Free	Free	$692

The Plus Promotion is valid from October 1, 1982 through December 31, 1982.

Accounting Plus II is distributed by

Lone Star Micro, Inc., 4239 Herschel, Dallas, TX 75219, (800) 527-5078

Starsoft, Inc., 15233 Ventura Blvd., Suite 806, Sherman Oaks, CA 91403, (213) 906-19

Starsoft, Inc., 4984 El Camino Real, Suite 125, Los Altos, CA 94022, (800) 882-8000 outside Calif

Software Dimensions Inc., 6371 Auburn Blvd., Citrus Heights, CA 95610, (916) 722-8000

Trademark of Apple Computer Inc. © 1982, Software Dimensions Inc. Accounting Plus II is authored and trademarked by Software Dimensions Inc.

Test strategies for solving the cube by video-game simulation

I can recommend **The Programmable Cube** from Metacomet Software as an excellent tool for testing Rubik's Cube strategies, although not as a substitute for the cube itself.

Indeed, the program contains an excellent visual and functional simulation of the cube. A color or patterned black-and-white cube rolls about on the screen in response to simple typed commands, which include elementary cube operations such as 90°, 180° and 270° turns, rotations of the entire cube about its three axes and slice moves, as well as complex user-defined moves built from these primitive operations.

All six sides of the cube are continuously visible via three simulated mirrors behind the simulated cube.

There are commands to scramble the cube and to undo the last move, and there is a setup mode for specifying the color of every cube face individually. (The program rejects some, though perhaps not all, impossible configurations.)

The writers of the program have also included a functional simulation of a dime—the tool I use to pry the cube apart when I want to start over—although they don't call it that.

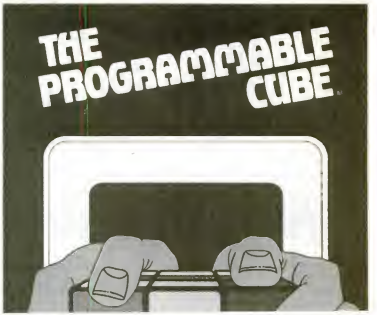
The Programmable Cube, in fact, incorporates an extensible programming language, which you can use to define new cube operations, using a Pascal-like syntax and pattern-matching techniques. It is the pattern-matching ability that brings the program into the domain of heuristic artificial-intelligence software tools. The program includes an editor and generates disk files compatible with the Apple Pascal editor and filer.

An important feature is the Solve command, which the authors believe is a complete cube solver. The Solve command is not terribly insightful, and takes approximately the same amount of time (approximately 15 minutes) to solve most of the problems I set it, some of which were among the first special-case problems a human solver would learn.

I was amused to see that, in one problem with three cubes out of place, the program spent the first three minutes turning the cube over and over in its "hands," apparently studying it, before making a single unscrambling move.

The authors supply the source code for this solver, along with a single-step mode that allows you to study the operation of the solver at your own pace. This single-step mode also works with any program you write.

The Programmable Cube cannot teach your fingers the dexterity of a champion cubist, nor does it supply the satisfactory tactile feedback of the real Rubik's Cube, but it is indeed programmable, and is a worthwhile tool for the Cubic strategist.—Usasi



APPO-AID HELP PACKAGE

- For the Apple II+ with 1 or 2 floppy disk drives
- Two-disk system is user interactive with HELP command
- User friendly, detailed information and examples for Applisoft and DOS commands
- Excellent instruction manual and reference tables

2-disk Package & Manual $74.50 Manual Only $10.50

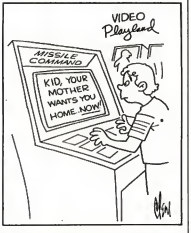
CA residents add applicable sales tax

TAOSOFT
APPO-AID
P.O. Box 7333
San Jose, CA 95150

DEALER INQUIRIES INVITED

TaoSoft

Apple is a registered trademark of Apple Computer Inc.



PROGRAM MAP for Microsoft BASIC

PROGRAM MAP produces alphabetical lists of a program's variables, commands & functions, line numbers referenced and constants. It is fast and easy to use and runs directly under CP/M.

PROGRAM MAP helps you accurately 'debug', modify, convert and/or document Microsoft BASIC programs in a minimum amount of time. A single CPU license is available for $150. Call our software HOT LINE 906/228-7622.

The Software Store
706 Chippewa Square • Marquette MI 49855

HARD COPY JUST TOOK A TURN FOR THE BETTER.

At last, you can output all the columns of your spreadsheet all at one time, all on one continuous page. Sideways, the ingeniously simple software program, causes your output to print out-you guessed it-sideways. So you can print as many columns as you need with just one print command.

It's an end to the ugly job of taping spreadsheet pages together side-by-side. And Sideways even lets you print in bigger type when you want big, clear presentations. For any text file, for dozens of uses, think Sideways. Your hard copy will read easier for it.

All you need to go Sideways is your IBM Personal Computer, and an Epson* or IBM printer with GrafTrax.* Get Sideways at your local computer store. Or send a $60 check or money order to Funk Software, P.O. Box 1290, Cambridge, MA 02238. (617) 497-6339. MC/VISA accepted.

SIDEWAYS™
FOR EASY-READING HARD COPY

*Available at leading computer stores.

$1790

"We built our business on a simple idea: more for less."

GEORGE MORROW

$1790 is the total retail price of the complete Micro Decision™ System you see in this ad. And that includes the computer with a disk drive, a full size smart terminal, and over $2200 worth of software (including word processing, an electronic spreadsheet, a way to check spelling and more). No other business computer available today offers so much for so little (a comparable Apple® system costs almost twice as much).

The Micro Decision. A bargain any way you look at it. The computer alone, with all that software and one disk is only $1195. If you want to add another disk drive, the price is still great: just $1545. And the smart terminal is only $595. Retail.

If you'd like more information...or to find out about our substantial quantity discounts, call us at (415) 430-1970. We'll introduce you to more Morrow. And less price.

LOOK TO MORROW FOR ANSWERS TODAY

MORROW DESIGNS

600 McCormick St. □ San Leandro, CA 94577 □ (415) 430-1970

Micro Decision is a trademark of Morrow Designs
Apple is a registered trademark of Apple Computer Inc

Defeat Landgrabbers, hurdle cannonballs, trap mice

The amusing cartoon on the package of **Flockland Island Crisis** from Vital Information of Overland Park, Kansas, shows a shepherd desperately protecting his sheep as invaders grab at the land under his feet. "Get the flock out of here," he shouts.

It's nice to find a programmer who has a sense of humor. Flockland Island Crisis is amusing.

The simple but pleasant color graphics show a narrow island, running from the top to the bottom of the screen, at the beginning of the game.

Flockland Islander shelters sheep

Your goal is to protect Flockland Island from the Landgrabbers who are seeking to take tons of Petrolanolinwealthurnium back to their home country, wherever that may be.

The Landgrabbers aren't an invincible armada. In fact, I was pleased to discover that after a half hour of play I had achieved one of the top five scores in the game. Considering that a bunch of proficient 14-year-olds played my review copy of the game for several weeks to rack up their high scores, my respectably high score is no small achievement.

Nevertheless, defending Flockland Island is not as easy as it sounds. The Landgrabbers come from both east and west simultaneously, so you need a good deal of coordination to successfully move and fire the OIDS (Orbiting Island Defense System) missiles successfully.

To move the left OIDS missile you press the Q key (moves missile up); pressing the A key moves it down. You control the right missile with the P and L keys, and fire OIDS quotons on either side by banging the space bar. The missile that fires is the one you most recently moved.

As I said before, I did well in this game. It took me no time to beat the highest score—a score that was registered by the programmer Kevin Bagley. Nevertheless, as is the case with most arcade games, and all wars, you can't win this one. The Landgrabbers must have wealthy allies, because they don't run out of ammunition until they manage to take five shiploads of valuable island soil and scatter thousands of sheep to the hills.

The action of this game comes from the old Space Invaders mold: They attack and you fire. By pressing the Escape key, you can stop the action. Flockland Island Crisis is an enjoyable game, though at $34.95 I wonder if it can keep your interest long enough to merit the price tag.—Alberto Adorno

On-Line Systems calls **CannonBall Blitz**, "a revolutionary new arcade game"—your usual case of company hype. Actually, this is an enjoyable game, and since it is difficult to master—none of the arcadians have made it all the way through the second level—it may be worth acquiring.

I don't play the quarter arcades often, but I understand that this game is modeled after the popular Donkey Kong. You are a rebel soldier and you must climb Nutcracker Hill. That would be easy but for the obstructions on the way. First there are cannonballs, dozens of them, moving so rapidly that it's easy to trip over them

See Cannonball Blitz, page 26

telecommunications? use SOFTCOM®

SOFTCOM is a smart terminal and file transfer utility all in one easy to use package. SOFTCOM can:

- make your system a terminal to a HOST time sharing system.
- capture data onto your disk from a HOST time sharing system.
- send text and program files from your disk to almost any type of computer.
- exchange any type of file with another SOFTCOM system with error detection and automatic retry.

SOFTCOM runs on all CP/M based computers. Three license options are available: single CPU ($150), dual CPU ($250) and multi CPU ($450). Call our software HOT LINE 906/228-7622.

The Software Store
706 Chippewa Square • Marquette MI 49855

THE $150 ROADMAP. BECAUSE YOU CAN'T AFFORD TO GET LOST.

Anyone can get lost with a microcomputer. Most systems are controlled by complicated commands that take a lot of time and effort to learn. And they can't allow for human error.

Let Your Computer Speak Your Language. Add the software that speaks your language. CP+ takes complicated operation commands and replaces them with simple English messages, menus, and directions. It guides you through all those everyday "housekeeping" tasks such as file copying, erasing, and printing that baffle inexperienced users. It lets you select operations and files using one keystroke rather than unintelligible abbreviations. And lot's more. So even novices have a roadmap to guide them every step of the way.

Suddenly Your Way Is Clear. Once people have the CP+ Advantage, they can handle all the computer functions safely and simply. "Terminal Fright" disappears, and in its place comes higher productivity. Because the easier it is to control the computer, the more it gets used, and used effectively.

Friendliness Plus. CP+ comes with a complete Self-Teaching Guide that walks you through every function. Within minutes you'll be working with your system like a pro. And with Taurus' unique TryOut™ program, you can evaluate it risk-free for 15 days. Ask your computer dealer about CP+. It's available today for only $150. And when you're lost with your mirocomputer, a roadmap like this is worth a fortune.

cP+

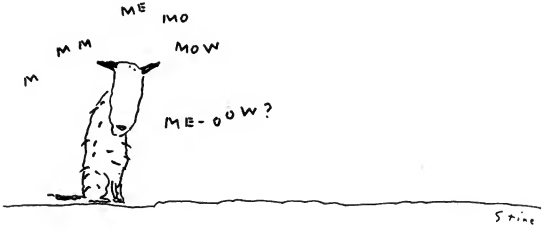
taurus Software

Software that speaks your language.™

Taurus Software Corp. 3685 Mt. Diablo Blvd., Suite 251, Lafayette, CA 94549 (415) 283-7222

CP/M ® is a registered trademark of Digital Research Corp. CP+ runs on all systems using standard CP/M ® V1.4 or 2.2.

Dogged attempt to learn a second language.



CP/M is a registered trademark of Digital Research Corp.

For more information on MicroPro dealerships, phone (415) 499-1200 or write MicroPro, 33 San Pablo Avenue, San Rafael, CA 94903

And now, InfoStar.™

The first DBMS you can use without speaking programmerese.

So put away your GO TOs and DO WHILEs.

InfoStar is one microcomputer data base system that doesn't ask you to write in code or learn a programming language. Instead you make selections from an on-screen menu written in one easy language. English.

Which means you don't have to be a programmer to use it. (Or a computer jock to sell it.) But, in case you are, there's something in it for you, too.

With InfoStar, you can generate a custom application four times faster than with other DBMS software.

Reason being InfoStar has a lot of the features that made WordStar® the standard of the industry. For instance, select-as-you-go menus prompt you through all procedures. And to format a data entry form or report, you simply draw it on the screen. We've said it before: what you see is what you get.

But, of course, that's not all you get.

Fact is, InfoStar has more informative (and self-documenting) capabilities than you've come to expect from any microcomputer DBMS.

Starting with report writing. A custom report feature—complete with transactional updating and exception processing abilities—lets you format, manipulate and merge countless different ways. And a quick report feature lets you finish faster than you can count them—usually in 60 seconds or less.

Not that you have to slow down to sort things out either. Because InfoStar can sort five to six times faster than any other DBMS in its class.

And for data entry, there are high-end minicomputer features. Like batch editing. And 200 editing mask combinations, to name a few.

All of which should make this a fairly easy sell. But for an added incentive, there's the fact InfoStar can help you sell a lot of different computers. Any of a growing number running the CP/M operating system.

You see, no matter how you look at it, InfoStar is one DBMS that speaks your language.

MicroPro®
The Microcomputer Software Company

Cannonball Blitz

continued from page 23

rather than to press the space bar so you can leap in time to avoid them.

You have two ways of getting to the top of the hill. The longer path is to follow the trail until you get to a plank that propels you to the next floor by functioning as a seesaw when a cannonball falls on the other end of it. You move horizontally by pressing the arrow keys and you jump over the cannonballs by banging on the space bar. Luckily, the Apple keyboard withstands such punishment.

You can also use the joystick to control your movement throughout the game.

If you get tired of making your way to the top, floor by floor, you can take your chances by hopping up and grabbing a balloon that flies by from time to time. The risk is that before the balloon manages to take you to the top so you can start level two, a cannonball might fall on it and crush you.

Level two is more difficult. So tough, in fact, that I don't have much to say except good luck when you get there. The documentation for the game inadequately describes what you must do to make it through this level.

Level two has several floors. Cannons roll across each level, seeking to run you over or shoot you. You can avoid them by leaping over them—although it's a tougher jump than the one over the cannonballs—or you can get out of their way by climbing a ladder to the next floor. The instructions also say you can destroy the cannons with a hammer, but they don't say where you find the hammer or how to operate it.

Of level three, I only know that the mission, again, is to capture the enemy and that this time there are elevators to assist you in the climb to the top.

I recommend this game to the persistent player who is willing to play for hours to master each level. This is a frustrating game, even though it's fun.—Alberto Adorno

Mouskattack from On-Line Systems may be better than Pac-Man—it's that good.

It doesn't need a long description. You play the part of a plumber and you must lay pipes throughout a house by quickly moving through a mazelike screen. You can move by programming the keys to control your direction or by using the joystick. I prefer to use the keyboard for quicker response.

While you are putting in the pipes, a bunch of mice are eating away at them, turning them a light gray color. To stop the mice, you can pick up a cat and place it near the mice. There are also mouse traps. If you pass over a trapped mouse, you collect points and remove it temporarily from play. If you run into a mouse, though, you lose.

Once you've managed to lay all the pipes, you move on to the next level. Naturally, it gets more difficult each time around. At one level, there is a supermouse that cannot be destroyed.

Ken Williams and Al Nystrom get a loud bravo from me for this game, which includes a musical introduction, albeit a rather disturbing digital rendition of—you guessed it—"Three Blind Mice."—Alberto Adorno

Bugs bug Bug Battle game reviewer

Bug Battle from United Software of America in New York City is a Centipede-like game without the action or flair of Cavalier's Bug Attack and without the graphics of the original Centipede.

To make matters worse, the game has a bug (a computer-type bug, that is).

To play the game, a player fires his pest-killing laser at flesh-eating caterpillars and lethal blue-widow spiders. This is done by moving the gun left to right and up and down. The up-and-down movement is restricted to about one-fourth of the garden plot (the bottom fourth). This is similar to the trackball version of Centipede.

The player has to shoot a bunch of green plants, which are supposedly deadly Amazon Skram weeds planted by the jealous neighbor next door. If you shoot the neighbor, you get 500 points.

I quickly determined that if I positioned myself in the upper left-hand corner of my maneuvering area and I had a plant anywhere to my right, I could put the gun on automatic fire and rack up an infinite score. The spider would never show up unless I moved, the bugs would all fall below me and wander aimlessly, the farmer (if he was sowing in an upper quadrant) would get shot often, and so would the caterpillar.

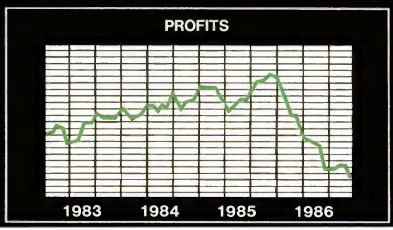
I left the game unattended for 30 minutes, during which time it racked up 250,000 points.

I noticed another bug (or at least a flaw) during this period.

After you collect a total of nine lives (you get one for every 10,000 points), it stops rewarding you. I received no new lives between 100,000 and 250,000 points. Obviously, the programmers didn't anticipate my high scores.

One positive thing about the game is that it only costs $22.50. Other than that, I think you'll be a little bored.—Palmer D. Quinlan

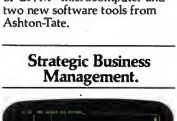
1986 WAS A BAD YEAR.



What you don't know can kill you, especially if you're responsible for the P & L.

But now you can get a better grip on the future—and your bottom line—with your IBM PC or CP/M© microcomputer and two new software tools from Ashton-Tate.

Strategic Business Management.



Our Bottom Line Strategist™ gives you answers to the questions common to any business focused on growth:

How much money are we risking? Will the business be profitable? When? Is that soon enough? Can we improve this by changing the price? What's the impact of our assumptions on net worth, cash flow, market penetration and growth?

In 15 minutes—with no programming, no formulas—the Strategist's pre-written, sophisticated econometric models will give you the answers you need.

With a few keystrokes, enter your current business assumptions, information you already have. Now sit back as the Strategist analyzes the potential viability and profitability of your business or project.

Choose the business graphics mode, and watch the dynamics of your future unfold as the Strategist plots your marketing and sales projections, anticipated cash flows, break-even point, NPV and more—a total of 11 production, financial and marketing forecasts. If any area looks doubtful, "zoom" in for a closer and closer look.

And if 1986 looks like a bad year, just change your initial assumptions and do it all over again, instantly.

Use the Strategist to refine your pricing policies. Optimize your cash flows. And maximize your profits while minimizing your risks.

In today's business climate, how much is that worth? The Bottom Line Strategist is $400.

Financial Tactics.

Our Financial Planner™ takes the next step and lets you write your own models for the ultimate in financial control.

It has enough depth to support financial analysts, business planners and corporate management with solutions to the most complex business problems you can foresee, yet is friendlier than the calculating spreadsheets you've seen.

With the Planner, calculations are automatically performed on individual entries, rows, columns and entire worksheets. But you enter your data into the matrix using abbreviated names, not mysterious formulas. And go beyond the spreadsheets, using the English-like Financial Planning Language (FPL™) to program complete solutions to your business problems.

Integral editing and an extensive report-writing facility make it easy to shape your information to your needs. And once you have your relationships, reports and models just right, you can automate the process so even your President can run them.

With the Planner, you can analyze new business ventures and mergers. Plan real estate acquisition and development. Combine data from parts or all of different models and easily produce consolidated budgets and reports in minutes. Fine tune your operations until you reach the financial objectives you've set.

The Planner is one of the most comprehensive business tools available on any computer, a powerful tool for growth.

And it's just $700.

Our No-Risk Offer.

You can check out the Financial Planner and the Bottom Line Strategist with no financial risk.

Drop by a dealer showroom and run through a hands-on demonstration. Then take a package home and use it for 30 days on your IBM PC or CP/M microcomputer. If you don't like it, return it and you'll get your money back.

For the name of the nearest dealer, contact Ashton-Tate at 10150 West Jefferson Boulevard, Culver City, CA 90230. Or better yet, call (213) 204-5570 today.

Because if time is money, the Financial Planner and the Bottom Line Strategist are money in the bank.

Ashton-Tate

CP/M is a trademark of Digital Research
© Ashton-Tate 1982

Shoot cannonballs, carnival creatures with games for Apple

Automated Simulations **Ricochet** is not arcade-speed or -quality, but it is an interesting game for the Apple II that makes you think. You compete against the computer or other players to score points by using your supply of cannonballs to hit various blocks on a grid, by striking bonus targets at each side of the screen or by stuffing an opponent's cannon.

When the game begins, each side has six blocks laid out evenly, much like the balls in a pool rack. During your turn, you have the choice of moving any number of your blocks in one direction or firing one cannonball from either an upper or lower cannon on your side. Some block moves are impossible since you cannot leapfrog blocks past one another or on top of one another.

Sample game screen of Ricochet, after two players have begun playing.

All cannonballs fired travel diagonally. When a cannonball strikes a block, the block is turned 90°, pivoting on a point in the central grid. The cannonball is deflected away from the direction it came and can then bounce off other blocks or off the top or bottom of the screen. It keeps bouncing until it stuffs a cannon or finds a blank exit on the sides.

The ducks, upon reaching the bottom row, give out loud quacks and move menacingly close to you.

What makes Ricochet interesting is trying to figure out where your cannonball or an opponent's ball will go once it is fired. Some trajectories can be quite involved, and you can stuff your own cannons with your own cannonballs. Your projectiles can also strike your own bonus targets and give your opponent the resulting points.

Ricochet takes a minute or so to load and then asks you if you want to play against the Apple II or a human opponent. If you pick the human opponent, it asks each player to enter a rating. Apparently Ricochet accepts any response to this question, but it's not clear what the computer does with it.

If you play the Apple II, Ricochet asks you for your rating only. Start with a rating of 0—it's safe.

You can also select one of five different games. Some start with more side targets and possibly a roving extra ball target. You can also opt for fast or slow ball movement. The latter is more tedious but lets you study the trajectories a bit more.

The keyboard controls used for moving and firing are Up, Down, Left, Right, Top or Bottom. The last two determine which of your cannons fires. When you want to move your blocks, you press either *M* or *V*. In a two-player game, *M* causes letters to appear on the left-hand blocks, and V causes right-hand block letters to appear. After selecting a direction, you can select the block's letter and have it move in that direction. Pressing the space bar ends a movement session.

I was most fascinated by the "thinking" the program does while contemplating a move in the single-player game. If you take too long—two minutes or so—to make a move, the computer penalizes you by giving itself a point. But if the computer cannot generate its own next move within a few seconds, after much thinking and beeping, it docks itself a point, then

See Ricochet, page 29

As IBM would design it

The Personal Hard Disk™ from Corona™. Only for the IBM Personal Computer.

Corona specialization makes the difference:

It fits right in—right inside the IBM Personal Computer, with no external power supply.

And it makes friends fast—with self-documenting, menu-driven, very "user-friendly" software.

It responds to your needs—for multiple operating systems on the same disk at the same time, in flexible partitions that grow as needed.

It backs you up—on floppies, using "selective" backup (by date, by volume, by category), so an additional backup device is not needed.

And it has reliability you can count on—combining exclusive use of Seagate drives with Corona's DataGuard™ and FailSafe™.

And the price?

$1995 for 5 MB,

$2495 for 10 MB

Experience the difference specialization makes.

Ask your dealer to show you the Corona Personal Hard Disk (or call us for dealership and quantity purchase information).

corona

The Third Generation Microcomputer Company

Corona Data Systems 31324 Via Colinas, Section 110, Westlake Village, CA 213-706-1505

Ricochet

continued from page 27

continues ruminating. It's quite odd.

As for what goes through the program's brain when it plans a move, who knows? Sometimes I was able to beat the computer handily, and other times it made me look like a dunderhead. This is not the usual sort of thing a computer game does to your mind.

I did notice the computer had an uncanny knack for finding ways to hit the extra ball target, but I never could.

The game ends when one side has no cannonballs left to fire. There are about four games in a match, and each time the previous winner has some new handicap—either his own target is worth a lot more than his opponent's, or the number of the opponent's targets is reduced, or both.

After each game, the computer awards points to both sides based on the points scored in the last game. The winner is the one with the most match points. At the end of the match, the computer then produces ratings for the "humans" (as the game calls them), and you are free to try again.

I wish they would add a feature to turn the sound off, though. It's grating, and it made it hard for me to think. This is one game where you need to think.—Allen Gibson

Data Most's **County Fair** for the Apple II, written by Dan Illovsky, conjures up memories of carnival sawdust, cotton candy and dozens of "try your skill" games that I could never win when I was a kid.

The object is to score points by hitting targets that move back and forth in four rows. The furthest row back is behind a barrier that has only two small openings.

You have a "gun" and a limited number of bullets and can move and fire with the joystick, paddle or keyboard. All the standard denizens of carnival hunting games are here: owls, rabbits and ducks, as well as trees and beach balls.

Bullet gobblers

As with most good video games, the power of the computer adds something extra. The ducks, upon reaching the bottom row, give out loud quacks and move menacingly close to you. If you don't shoot them in time, they disappear and a little duck-icon gobbles some of your remaining bullets.

If you finish shooting everything on the screen, you enter a bonus round where you get ten points every time you hit a solitary duck flying back and forth. The catch is you have about one chance to hit the duck before he flies off the screen, and every time you hit him he reverses direction, flying higher and higher and faster and faster. It's a challenging exercise of your reflexes.

To add extra spice, small symbols appear in front of the rear barrier. If you hit these symbols, they add to or subtract a certain number of bullets from your inventory. The negative ones have a habit of appearing in front of the small openings to the fourth row of targets.

The game ends when you run out of bullets.—Allen Gibson

Arcade-game imitators lack realism

Nothing is more disappointing than a personal-computer video game that doesn't live up to the arcade game that it imitates.

Both Tunnel Terror (from Adventure International of Longwood, Florida) and Asteroid Field (from Cavalier Software), both for the Apple Computer, fall victim to this failing.

Tunnel Terror is a poor attempt at copying Atari's Tempest arcade game, one of the best of the genre. Tempest gets the adrenaline pumping better than anything—except, perhaps, going 6X in Missile Command. And with a dizzying three-dimensional fall into a vortex, Tempest offers almost hallucinatory graphics at mind-boggling speed.

Unfortunately, Tunnel Terror does none of this. It gives the player only a paltry imitation composed of a couple of lines that imitate a vortex and some kind of visual "bug" that swings around the screen.

As in Tempest, the object is to destroy all of the objects hurtling up from the center of the screen before they get you.

All I got out of this game was a sore thumb.

Asteroid Field, which prominently notes that it has been licensed from Atari, is closer to its original. Given the limits of the Apple's screen resolution, the graphics are commendable and fast.

For those of us who nostalgically remember Space War, the original father of the video-arcade craze that once haunted many mainframes and minicomputers, however, Asteroid Field lacks some key realistic aspects, such as the factoring in of gravitational effects.

Overall, Asteroid Field is a good try and with a little more resolution it would be an excellent game, for those of you who weren't already bored by Asteroids two or three years ago.—David Westerby

The Only Database That's Smart Enough For Business Forms.

- Invoicing
- Purchase Orders
- Client Billing
- Medical Claims
- Sales Analysis
- Personnel Records
- Inventory Ledgers
- Mfg. Parts Lists

VersaForm™
Business Form Processor

Applied Software Technology
14125 Capri Drive
Los Gatos, California 95030
(408) 370-2662

Star Trek Colossus for the North Star Horizon II

Simulation game gives you complete control over the Enterprise

SPACE—THE FINAL FRONTIER! These are the voyages of the starship Enterprise. *Its five-year mission: To explore strange new worlds, to seek out new life and new civilizations, to boldly go where no man has gone before.*

Welcome aboard. My name is Captain James T. Kirk. Mr. Sulu, please take our visitor on a tour of the *Enterprise* and explain to him our capabilities. Yes sir, Captain Kirk.

The USS *Enterprise* is composed of 24 decks (996 rooms) as shown on the 27 × 42-inch blueprint map (included with the game). There are four major control centers: the main bridge, where we are now, and three other auxiliary and emergency bridges.

Sir, this chart shows the 430-member crew by name; rank; location on board; health, strength and morale factors; special skills; objects carried or worn; and crewman specialty.

Our crew is divided into sixteen security groups, nine repair groups and three command-control teams (up to ten crewmen each). By the way, Captain Kirk can form eight more groups of any one kind and command them to go to whatever part of the ship they are most needed.

Let us go to Deck 16, which contains the medical section and warp-drive engineering. By the way, the *Enterprise* is powered by two main warp engines and four impulse engines and is protected by eight separate deflector shields that can be rotated in six directions for maximum protection.

Sir, let me show you the medical section. We have three intensive-care units that can handle up to five critical patients at one time. Please allow me to show . . .

RED ALERT! RED ALERT! RED ALERT!

Sir, we must return immediately to the bridge. A Klingon vessel is nearby and ready to attack!!!!

With the above narrative, I have tried to describe the intricate detail of this Star Trek simulation. I have given only a small taste of all the facets.

Diagram of the bridge of the USS Enterprise, *from the blueprint map*

Star Trek Colossus is an interactive system of 25 chained programs and 17 disk files. It comes with extensive documentation on a separate rules disk.

You play the game itself with a command list, a menu of 24 ship commands. You have complete helm control to pilot the ship—destination, intercept and manual helm-control modes. Between moves, a strategic display consisting of a grid map of 100 cubic sectors (one-tenth of a quadrant) with star systems and vessels appears on the screen.

Insignificant images

The program's attempts to display maps and Klingon battle cruisers falls far short of being a significant feature, since only keyboard characters are used to form these images.

To play the game, you simply enter a 0 on the menu screen and wait for the program to give the *Enterprise*'s location, at which point you have helm control. After you have entered the new instruction, the menu screen again appears and you are ready to enter one of the 24 commands, if you wish, and take another turn.

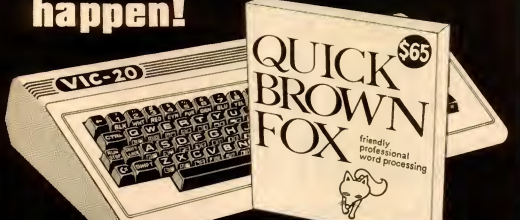
Let me warn you that each turn accesses the disk and so takes a considerable amount of time. In one hour, I was only able to take 16 turns. To me, that is an unacceptable situation and takes all the fun out of the game.

Star Trek Colossus requires a North Star Horizon II (double density) with 32K of RAM and any 80 × 24-line terminal. The requirements do not mention a printer, but you must have a printer since the rules are on disk and you need to learn and study them before you can effectively play the game.

The game costs $69.99, which is a bit much for a game, even a game as intricate as this one. Many Star Trek games are in the public domain and available from local users' groups.

One final word of caution: The instructions to run the program and the rules disk are short and leave a lot to be desired. You should have a thorough knowledge of your North Star system to run this program.—Rolf Hille

We made the $2000 BREAKTHROUGH happen!



WP Milestone: Full Features at 'Smart' Typewriter Prices!

NEW YORK...*1983 will be the year of the Fox," said QBF exec Joe Ming as he unveiled the $65 Quick Brown Fox word processing program.

"$65 for Word.star-level word processing software is real news, but it's only part of the story," said Ming. "The real news is that 1983 is the year that the Quick Brown Fox made it possible to have a real word processor for less than $2000."

"We sell only the Quick Brown Fox software," Ming emphasized. "But we can show anyone how to put together VIC-20 or Commodore 64 WP systems with a total cost from as little as $700 up to only $1830 for 'real' word processing."

What's "real" word processing? Ming said that full-featured word processing means pro software like Quick Brown Fox, letter-quality printing, 80-column display, added memory, and disk storage.

A "student" VIC/Quick Brown Fox system with no extra memory, a draft-quality printer plus cassette would tilt the scales at less than $700 using discounted VIC prices. And that includes the computer!

All that is available now in the sub-$2000 range of letter quality word processors are intelligent typewriters with one or two line displays, very little internal storage, and external storage (if any) on cassette tape.

"Frankly," said Ming, "if anyone buys a 'smart' typewriter after today, they probably aren't too smart."

At QBF/CBM prices, one could even add two or three QBF/CBM work stations for the cost of a Lanier or Wang work station!"

QBF's free brochure shows how to get a professional word processor system for less than $2000. The brochure also shows how to make up "starter" systems. QBF is really capitalizing on recent events in the Commodore world: widespread price cutting, new 80-column boards, and the arrival of sub-$700 letter quality printers.

Quick Brown Fox uses an approach to editing that is not cursor-oriented. This means that the Fox will work even on a "stock" (22 column) VIC-20 or Commodore 64. Quick Brown Fox will work with any width display, taking advantage of recently released 40/80 column boards.

Quick Brown Fox and VIC-20 actually costs less than the Word.star alone, the current standard of word processing software. But how does QBF look when compared to venerable, old, Word.star?

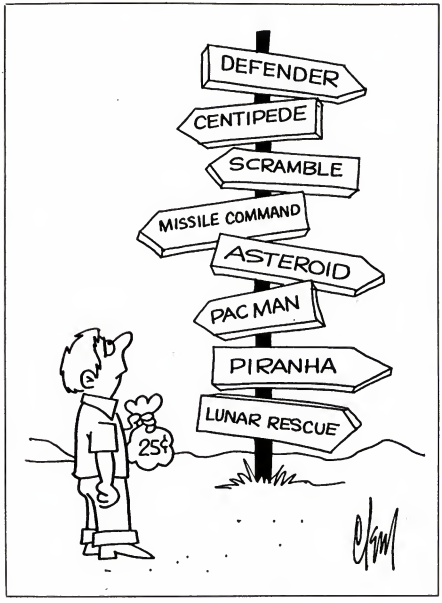
In the feature race, Word.star loses the comparison. QBF has many unexpected features such as proportional spacing (on WP printers), an easy "fill in the blank" command (Dear Sir: You owe us ...), plus any-format boilerplating for form letters.

The biggest advantage over Word.star, said Ming, is that QBF automatically reformats edited text...this becomes a tedious paragraph-by-paragraph operation with Word.star. "With the Fox," Ming bragged, "you process words...you don't just play with the word processor."

Dealer Inquiries Invited

548 Broadway Suite 4F New York, NY 10012 (212) 925-8290 (800) 547-5995 EXT. 194

Electronic Christmas, Zappy New Year



By Scott Mace, IW Staff

This 1982 holiday season, more than any before it, belongs to video games.

Video monsters are flying, plodding, slithering, crawling, teleporting and invading on TV screens across America. Video games excite, provoke, annoy, offend, teach, hypnotize, bore, amuse, addict, occupy and dazzle us as never before.

This Christmas all the major players are on the field. The old-timers, such as Atari, Activision and Magnavox, are up against the upstarts such as Vectrex and ColecoVision. Atari, determined to hold on to its dominant share of the video-game market, released games based on the hit movies *E.T.* and *Raiders of the Lost Ark* with a publicity campaign far larger than the one that launched Pac-Man last Christmas.

Even the movie studios are getting into the act, realizing that millions would rather zap homegrown baddies than go to the movies. Ahead of the others is 20th Century-Fox, with games based on its movies *Mega Force* and *Alien*. Paramount and other studios are not far behind.

The television networks, not immune to being tuned out in favor of a good game, are also in the act. This year CBS acquired a line of games from K-Byte for the Atari 400 and 800 computers and launched CBS Software.

Many companies realize that a line of game software can build the name recognition needed later for other kinds of home-computer software, such as telecommunications, banking or education.

The video game also had a large impact on the toy industry in the last year. Sales of traditional toys have sagged, as parents and kids alike poured their discretionary money into video games. Companies that did not enter the video-game market, such as Tonka, are not doing as well as such companies as Milton Bradley or Mattel, which have heavily invested in hardware or software.

As a partial response, traditional games such as Monopoly are now appearing in electronic versions that speed up play. In Parker Brothers' Mo-

See New year, page 32

New year

continued from preceding page

nopoly Playmaster, the small computer rolls the dice, auctions off unowned property and plays short jingles, such as "I've Been Working on the Railroad," when a player lands on a railroad square.

Whole companies owe their existence to video games. Nolan Bushnell, founder of Atari and developer of Pong, one of the first video games, went on to start Pizza Time Theatre, a chain of combination pizza parlors and video arcades that opened its 200th parlor last month in Hong Kong.

In a phone interview, Bushnell told *InfoWorld* that Pizza Time Theatre will introduce some homegrown educational video games early next year for children between the ages of five and eight. The games will be smaller than the regular arcade games, Bushnell said, and they will teach abstract concepts such as direction and motion. The games will also give youngsters experience with controlling menu programs.

Among the games Pizza Time will release are a safety game, code-named Mary Goes Home From School, that teaches children how to cross the street and obey traffic lights; reading games and number games, based on material typically presented on a "Sesame Street"-type show. The games will not have a CRT, but will rely instead on a touch-sensitive glass screen, with illuminated messages, controlled by the game computer. Game winners will receive tickets redeemable for prizes and food.

Bushnell is under agreement not to compete with the company he started, Atari, until a specific day and hour in October 1983. He is, though, clearly ready to reenter that area as soon as he is allowed. Among the hot trends Bushnell sees in regular video games this year is the story game, such as Donkey Kong, where a hapless little guy must rescue a maiden from a giant gorilla.

Flooded arcades

The flood of new games entering arcade parlors continues; even with dedicated microprocessor power and graphics, few home video games can come close to the action in the arcades.

Nevertheless, industry watchers notice that this year arcade machines have penetrated just about every nook and cranny they can. Recently, a high school in San Jose, California, installed a few arcade machines in an empty classroom to raise some money for the school during lunchtime.

In the meantime, the debate over controlling the use and placement of arcade games continues unabated, with neither government nor the game manufacturers themselves policing the situation.

Many observers consider this Christmas the high-water mark for dedicated video-game systems. Some predict the new machines—such as

Version 4.0

The Ultimate APPLE® Utility Program

COPY II PLUS

Now you can back up your protected software. Copy II Plus is the most sophisticated bit copy program available. It handles synchronized tracks, half tracks, nibble counting, bit insertion and other protection schemes. It also includes a comprehensive discussion of disk format and protection techniques, and instructions on how to back-up dozens of popular programs. A disk system and speed check assure your drives are running in top condition and a nibble editor will allow you to repair damaged diskettes, analyze protection schemes, etc.

The last DOS utility disk you will need. Fully menu driven, the Copy II Plus utilities include a catalog display with binary file addresses and lengths, a disk usage map, and the ability to verify and compare files for differences. It can copy, lock, unlock and delete files and DOS can be copied, or removed from a disk to free up space. You can change the greeting program on a DOS disk, or initialize a disk from scratch. The Copy II Plus sector editor will allow you to view and modify data in either hex or ASCII format.

For your convenience, Copy II Plus is not copy protected for backup.
Available at fine computer and software stores or direct from:

CENTRAL POINT Software, Inc.
P.O. Box 19730-203
Portland, OR 97219
(503) 244-5782

$39.95

Attention current Copy II Plus owners: Return your original disk with $19.95 for an update to Version 4.0.

STONEWARE'S AMAZING NEW GRAPHICS PROCESSING SYSTEM

Professional quality graphics for the Apple II Plus.

After two years of development, Graphics Processing System is the ultimate in fast, low cost, easy-to-use graphics programs. Graphics Processing System creates and edits images in the same manner word processors work with text.

Graphics Processing System features: **Grid Maker** for working with scale and proportion ■ **Colors** can be mixed and used to color lines, objects and backgrounds ■ **Two Zoom** powers for greater detail resolution ■ **2-D Rotation** to full 360° ■ **Duplication** on screen, to disk, and from disk ■ **Text Capabilities** in upper case A-Z, 0-9, and all characters on the Apple keyboard ■ **Modify or Erase** a portion of an image without having to start from the beginning ■ **Enlarge or Reduce** images ■ **Change Proportions** vertically and/or horizontally ■ **Print Overlays** separately and in different colors ■ **Accesses** 16K RAM card ■ **Compatible** with other Apple HiRes graphics ■ **Uses** Apple compatible game paddles and joystick ■ **Speaks** directly to The Apple Silentype printer and accommodates graphic dump programs for other printers ■ **Professional Version** is also compatible with Apple Graphics Tablet, Symtec Light Pen, Houston Instruments HiPlot DMP 3, 4, 6 and 7, HP7470A Plotter, Strobe 100 Plotter, IDS 460 and 560 Graphics Printers, Epson MX80 Printer with Graphtrix.

Only **$179.** for Professional Version and **$69.** for Standard Version.

Requires 48K Apple II Plus, one or two Apple Disk drives, B&W or color screen, game paddles or joystick. Optional: 16K RAM Card or Language Card. Apple ®Silentype or other B&W or color printer GPS is available through leading software distributors and Apple Dealers. Or send check, money order, Visa or MasterCard (include expiration date) to Stoneware Incorporated. California residents add 6% sales tax
Reg. Trademarks: Apple, Apple Computer Inc. Stoneware, SYMTEC Inc. HiPlot, Houston Instruments Inc. of Austin & Austin HP7470A, Hewlett Packard Co. Strobe 100, Strobe Inc. IDS 460 & 560, Integral Data Systems, Inc. Epson MX80, Epson America Inc.

We Have It! ..at the best prices

Cromemco Tomorrow's Computers Today

System One $3395
System Two $3949
w/ Dual Mini Floppies
System Three $5895
w/ 8" Dual Drives

CS-1D2E: 68000 System 1 w/256K $4669
CS-1HD2E: 68000 System 1 w/5 Meg Hard Disk, 256K $7220

—UPGRADE TO 68000!—
DPU-68000/2-80 CPU Board $848
256K MSU RAM Board w/ error correction $1649
512K MSU RAM Board w/ error correction $2496
MCC Memory Management Board $419

—CROMEMCO BOARDS—
CSS Single Card Computer $419
ZPU2-80 CPU/2 MHz 335
16K2 Dyn. RAM Memory 419
48K TF 2Port 48K Memory 948
64K2 Dyn. RAM Memory 586
16 FDC Disk Controller DD 499
8K Bytesaver II Prom Prog 249
32K Bytesaver Card (2716s) 299
TU-ART I/O Interface 299
D7A Digital/ANALOG Interface 249
8PIO 8 Port Parallel Interface 249
4PIO 4 Port Parallel Interface 335
QORT 4 Ch. Syn/Asyn Interface 499
IOP Int. I/O Processor 419
PRI Printer Interface Card 209
16K PR 16K Prom Memory Card 209
CGI TV Dazzler 375
SCI High Resolution Color Graphics 679
EXC-2 Extender Board 36
WWB-2 Wire Wrap Board 38

—CROMEMCO SOFTWARE—
CROMIX 68000 495
CROMIX Multi-User 495
FDA Macro Assembler 249
EDB MBE Extended Basic 95
FDC COBAL Compiler 195
FDF Fortran 77 Compiler 149
FCR RATFOR, includes FORTRAN IV 298
STS 32K Structured Basic 195
SGB Super Dazzler Graphics 299
DBM Data Base Management w/report 149
WPS Word Processing System 349
TES Trace System Simulator 99
WRMR Wordmaster Word Processor 495
SLMR Sidewriter 499
SPMR Spellmaster 249
FOMR Footmaster 499

All prices F.O.B. shipping point, subject to change. All offers subject to withdrawal without notice. Advertised prices reflect a 2% cash discount (on-line prepaid prior to shipment). C.O.D., credit card orders, 2% higher

Mini Micro Mart, Inc.
Box 2992K Syracuse, N.Y. 13220
(315) 422-4467
TWX 710-541-0431
WRITE FOR FREE CATALOG

the Z80-based ColecoVision game machine, built by Coleco Industries of Hartford, Connecticut; or Milton Bradley's raster-graphics-based Vectrex with built-in video screen—are the last gasp of an industry soon to be swallowed whole by low-cost personal computers.

Indeed, Commodore is spending millions of advertising dollars to sell its VIC 20 computers by hammering home one message this Christmas: "Why spend more for a game machine when you can have a computer for less?"

Despite this, new game machines continue to appear, such as the Atari 5200, an upgraded home-video system. Radio Shack, based in Fort Worth, Texas, has even thrown its cowboy hat into the ring with Tandyvision One, a Mattel Intellivision-compatible system with 16-bit microprocessor. Still, at a suggested retail price of $249.95, the machine costs $50 more than a TI Home Computer or a VIC 20.

Weathering the shakeout

Some video-game makers hope to weather any coming shakeout by offering upgrades to turn the game machines into home computers.

The ColecoVision uses the Z80 microprocessor, which is at the heart of many CP/M computers. A plug-in keyboard and printer are in the works for 1983, according to the company. Many consumers may balk, however, remembering the unfulfilled promises of the original Intellivision machine, which never turned into an economical home computer.

Mattel has continued to promote the Intellivision game machine through its series of M Network game cartridges. The Los Angeles-based toy company is getting closer to releasing its own full-blown personal computer.

This Christmas, Mattel introduced the Teach & Learn Computer, a portable education tutor with cartridges that quiz 6- through 11-year-olds on memory and logic, spelling, reading, nutrition, geography and programming using a version of BASIC called KIDBASIC.

The computer comes with its own LCD-based screen and keyboard overlays for each cartridge, instead of the usual QWERTY arrangement. In large national ads, Mattel has promised parents "a smarter kid in 60 days or your money back."

Both the Intellivision and Magnavox's Odyssey II game machine feature speech synthesis, and reportedly Magnavox will program its machine so users can audibly reproduce anything using the Odyssey II's QWERTY keyboard. The Atari 5200 will have a voice synthesizer by the end of 1983, as well.

Radio-maker Emerson hopes to combat the $99 Timex personal computer and the VIC with Arcadia 2000, a game machine that will sell for less than $100.

Whether companies survive the inevitable video-game shakeout or not, the video game will live on as a fixture in many homes for years to come. Such a phenomenon is attracting serious study. On December 3, New York's Columbia University and Atari Research cosponsored a day devoted to such a discussion called "Video Games: Serious Business?"

Speakers included Chris Crawford, a famous video-game designer and manager of the Games Research Group at Atari; Steve Mayer, chief inventor of the Atari home video-game system as well as the Atari 400 and 800 home-computer systems; and Warren Robinett, cocreator of one of the most startling video games this year, Rocky's Boots by The Learning Company, where children use joysticks to create machines using Boolean logic.

What kinds of games can personal-computer owners expect in the coming year? A few weeks ago, the top game on distributor Softsel's best-seller list was Broderbund's Choplifter, a helicopter-rescue game for the Apple II computer that has both old and new elements.

Choplifter maintains the traditional shoot-em-up spirit with flying bombs and heat-seeking missiles. At the same time, the player's mission is one of mercy, as the helicopter tries to rescue as many hostages as possible.

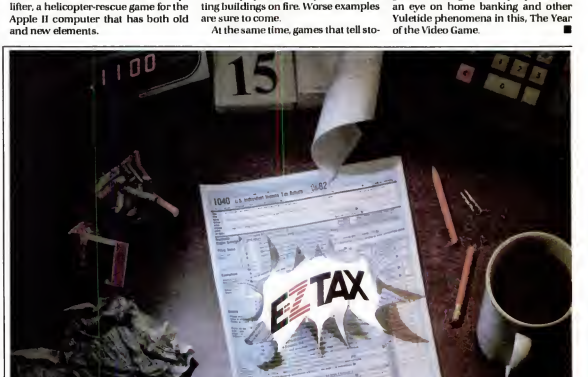
The number 2 game on Softsel's best-seller list was Sierra On-Line's version of the popular arcade game Frogger, where the object is merely to survive without the aid of any offensive weapons.

Does this mean the days of excessive violence in video games are through? Probably not. Recently, a video game called Arson made its debut—players receive points for setting buildings on fire. Worse examples are sure to come.

At the same time, games that tell stories and educate are on the rise. In Space Knights, a game published this year by Reston Publishing Company, the arcade-style and educational games are centered around an original science-fiction novel for children, written by David Heller and illustrated by Frank Cirocco and Al Gordon.

The games in Space Knights allow players to experience the adventures of the novel's main characters, while players learn vector algebra in order to travel.

Elsewhere in this issue, our writers look at new video-game watches, the U.S. surgeon general's attack on video games, a new game company that has an eye on home banking and other Yuletide phenomena in this, The Year of the Video Game. ■



The Tax Break You've Been Looking For!

You Just Found It!

E-Z Tax — the easiest to use tax preparation software ever developed. Now you can do your own tax return without any knowledge of taxes or computer programming.

E-Z Tax's self-prompting questions assure you that nothing is overlooked. The program automatically computes the lowest tax for you.

E-Z Tax prepares the following IRS Forms and Schedules

1040 A	2106
1040 EZ	2119
1040 P. 1 & 2	2210
Sch. A	2440
Sch. B	2441
Sch. C	3468
Sch. D	3903
Sch. E	4137
Sch. F	4684
Sch. G	4972
Sch. R/RP	5695
Sch. W	6251
1040 SE	6252
1040 ES	

Prints on Federal Forms

It's so easy to use, you'll be doing your tax return the moment you insert the 5¼" disk. When you're finished E-Z Tax will print out your information on the official Federal Forms.

Very Friendly!

E-Z Tax is user friendly. When you have a question, the program will tell you on what page in the E-Z Tax Guide Book you'll find the answer. If you make a mistake the program alerts you immediately with screen prompts.

We Support You!

E-Z Tax has a toll-free customer service number available 24 hours a day for your convenience.

Never in the history of computer software has there been so much for so little.

ONLY $69.95
TAX DEDUCTIBLE

Available in the following versions. Apple II (48k), IBM PC (64k), Atari and CP/M.

For the name of your nearest distributor **CALL:**

408/264-1040
800/331-1040 U.S.A.
800/344-1040 CA

Apple II™ is a trademark of Apple Computer, Inc.
CP/M™ is a trademark of Digital Research, Inc.
IBM™ is a trademark of IBM Corp.
Atari™ is a trademark of Atari, Inc.

EZ TAX™

2444 Moorpark, San Jose, CA 95128

Casinos add computer power to one-armed bandits

By Michael Wiesenberg

Computers are becoming part of more and more activities, including gambling. In the mid-60s, electronic blackjack machines first appeared in the casinos of Nevada; the popularity of video gaming devices began in the late 70s with video slot machines that had spinning pictures on the screen of the fruits, bells and jackpot symbols.

Soon other games were computerized, and now the casinos of Nevada and Atlantic City offer, in addition to "traditional" reel-type video slot machines, rows of video-poker slot machines, video dice games, video keno (complete with light pens to mark numbers bet on simulated keno layouts), video blackjack and others.

The larger casinos have around 1000 slot machines each; as many as 15% of these are video gaming devices. The most popular of these are the linked progressive-jackpot video slot machines, either of the poker variety or simulated spinning reels.

A penny per dollar

On progressive-jackpot machines, one or two cents are added to a progressive jackpot for each dollar played. The jackpot might typically start at $10,000 and increase to as much as $1 million. Several of these machines are linked together (where they are grouped is called a *carousel*), and the coins going into each contribute to the communal jackpot.

One attraction for this type of machine is that the jackpot can reach a size where the player has an overall positive expectation. This doesn't mean the "house" is losing any edge, just that the losings of all the previous players have pushed the jackpot up to the point that it pays more than it should.

For example, a one-dollar slot machine with four reels typically has 23 symbols on each reel, including one jackpot symbol on each reel. As a result, a player has one chance in $23 \times 23 \times 23 \times 23$, or one in 279,841, of hitting. If the jackpot exceeded $279,841, it would pay more than it should.

In actuality, the jackpot could be considerably smaller and the player's expectations still could be positive because all the lesser pays have to be figured in. For example, one cherry on the first reel pays two coins and comes up perhaps once in five spins.

The highest slot-machine payoff went to the player who hit a $992,000 jackpot at Caesars Tahoe (Stateline, Nevada); Caesars threw in an extra $8000 to make it an even million.

As the generation that grew up playing video arcade games comes of gambling age, video gaming devices will grow in popularity, and the old one-armed bandits may become obsolete. The most popular games will require a modicum of skill, such as the poker slot machines.

On the poker slot machines, players are "dealt" five cards, to which they can make a draw if the initial hand is not a completed poker hand (which happens most of the time). The skill comes in knowing whether to keep the small pair or draw two to the straight flush, keep the lone ace or draw five new cards—and, of course, knowing when the progressive jackpot (paid for catching a royal flush) on such a game has passed a point of positive expectations.

The market for these games is rapidly expanding, as states other than Nevada and New Jersey legalize limited gambling. Michigan, for instance, has begun testing a new video poker game and hopes to have 2000 machines installed around the state within a year.

Makers of video arcade games are rapidly jumping into the expanding video-gaming-device market, while start-up companies have formed exclusively for the production of these modified computers. The largest manufacturer and distributor of video gaming devices is Bally Corporation in Chicago, followed closely by International Gaming Technology (IGT) of Reno, itself a spinoff from Bally.

Meyco of Santa Clara, California, has some 40 machines placed in Nevada casinos on a test-market basis. Game-Plan (Chicago), Omega (Carlsbad, California), Games of Nevada, Summit (headquartered in England), Fortune Coin (Las Vegas), Al Coin (Carson City) and Bell Fruit Ltd. (Italy) are all producing for the market.

These video gaming machines all use 8-bit microprocessors (8080, 6502, Z80), and are, in effect, intelligent terminals with dedicated gaming programs. All they would need are monitor programs, RAM chips and the exchange of some PROMs to become microcomputers.

An added advantage of electronic gaming devices to the casinos is that the machines can all be tied into central monitoring equipment, providing a literally minute-to-minute report of each machine's action. A casino can then thoroughly check out machines that appear to be paying out too much, and make the payouts more liberal on or move machines that are not getting

GREAT PRICES!

COMPUTERS
TIMEX $89
FRANKLIN W/ monitor 1098
VIC 20 189
CALIFORNIA COMPUTER SYSTEM ..... CALL!
INDUST. MICRO SYSTEMS ..... CALL!
MORROW MICRODECISION CALL!

PRINTERS
Smith Corona TP-1 ..... $599
C Itoh PROWRITER-P 489
C Itoh PROWRITER-S 639
C Itoh PROWRITER 15" 789
C Itoh F-10 1399
C Itoh F-10 TRACTOR 229
OKIDATA 80 359
OKIDATA 82A 489
OKIDATA 83A 739
OKIDATA 84A 1179
IDS PRIM 132 1649
4 color, 200 cps, auto-sheet feeder, graphics
IDS PRISM 80 789
IDS MICROPRISM 599
ANADEX 9501 1299
MICROFAXER 32K S-S 269
MICROFAZER 32K P-P 199

TERMINALS & MONITORS
ADDS VIEWPOINT $559
AMDEK VIDEO 100 99
AMDEK VIDEO 100G 137
AMDEK VIDEO 300 179
AMDEK COLOR I 399
AMDEK COLOR II 719
TELEVIDEO 910 649
TELEVIDEO 912C 799
TELEVIDEO 920C 868
TELEVIDEO 925 825
TELEVIDEO 950 949

GAMES
SPACE CADET 529
SNACK ATTACK FOR IBM 39
NEMESIS 39
DUNGEON MASTER 39
ANALIZA II 39

APPLE HARDWARE
Videx VIDEOTERM $299
Videx KEYBOARD ENHANCER 119
Microsoft Z-80 SOFTCARD 279
Microsoft 16K RAMCARD 149
Microsoft PREMIUM PACK 599
includes: Z-80 Softcard, 16K Ramcard, Videx Videoterm, and CP/M USER GUIDE.
RANA I-163K $379
RANA II-326K 529
RANA III-652K 699
RANA with controller (additional) 99
Hayes MICROMODEM II 289
5VA 256K APPLE-CACHE 949
Mountain MULTI I/O 178
Mountain SUPERTALKER 262
M&R SUPERFAN 58
GRAPPLER PLUS 125
PKASO 135
CCS 129
Asynchronous interface
CCS 149
Synchronous interface
CCS Calendar Clock 105
CCS Printer interface 129

IBM ACCESSORIES
Quadram 128K RAMCARD 599
Quadram 192K RAMCARD 669
Quadram 256K RAMCARD 669
Quadram includes RS232, parallel port, real time clock
Microsoft 64K RAMCARD 399
Microsoft 64K RAMCARD 599
Microsoft 192K RAMCARD 699
Microsoft 256K RAMCARD 799
Tandon SGL. SIDED FLOPPY 249
Tandon DBL. SIDED FLOPPY 289
Davong HARD DISK SYSTEM 1599

MEDIA
Maxell MD-1 ..... $51.25
Maxell MD-2 ..... 47.10
Maxell FD-1 ..... 41.50
Maxell FD-2 ..... 48.95

MISC. SOFTWARE
MATHEMAGIC 579
GRAPHMAGIC 79
DIAGNOSTICS II 84
DISK DOCTOR 84
UTILITIES I, II $3

WORDPROCESSING
WORDSTAR $279
MAILMERGE 149
SPELLSTAR 144
PERFECT WRITER 239
PERFECT SPELLER 139
WORD HANDLER 199
SPELLBINDER 279
SPELLGUARD 179
EASYWRITER II 269
EASYSPELLER 159
PIEWRITER 123
WORD PLUS 129
MATHSTAR 99

DATA BASE MANAGEMENT
dBASE II $529
PERFECT FILER 279
EASYFILER 349
FMS 80 250
TIM III 399
FAST GRAPH 189
THE ANSWER 219
QUICKCODE 229
OUTIL 69
O GRAPH 239
DATASTAR 171
SUPERSORT 145
VISIFILE 228
VISIDEX 184

FINANCIAL SOFTWARE
EAGLE MONEY DECISIONS $119
SUPERCALC 189
PLANNER CALC 69
MASTER PLANNER 249
MULTIPLAN 159
PERFECT CALC 139
VISICORP VISICALC 184
DEKTOP PLAN 184
VISISCHEDULE 228
VISITREND / PLOT 228
SCRATCHPAD 259
STATSGRAPH 169

ACCOUNTING SOFTWARE
ACCOUNTING PLUS $585
ACCOUNTING PLUS II 299
For Apple II
EASY EXECU. ACCOUNTING 579
TCS 79
THE HOME ACCOUNTANT 129
IUS-IBM ACCT. SYS. ..... CALL!

LANGUAGES
Microsoft BASIC COMPILER $299
Microsoft BASIC INTERPRETER 279
Microsoft FORTRAN 80 379
Microsoft COBOL 80 559
Microsoft MBASIC / MUMATH 199
Microsoft TASC 149
Supersoft ADA 269
Supersoft FORTH 149
Supersoft A.I.D.S. 99
Supersoft FORTRAN / RATFOR 284
Sorcim PASCAL M 129
Whitesmith's C 690
Whitesmith's PASCAL 850

CALL TOLL-FREE
1·800·523·9511
IN PENNSYLVANIA
1·215·868·8219

enough play.

The casino operators can maintain constant records on cash flow. An ancillary market has developed for creating monitoring equipment. Every month, Anthem Electronics of Santa Clara, California, produces thousands of Z8-based monitoring devices that can be hooked up to old preelectronic slot machines.

In the video slot-machine types of gaming devices, players are pitted against machines with a fixed house edge that steadily grind out their percentage from the total amount of "action" (how much money is wagered overall).

In contrast, The Dealer, an electronic poker table being test marketed by Pacific Electronic Sports Corporation (PESC) of Hayward, California, pits players against each other, just as in a "real" poker game. The Dealer shuffles and deals to six players, each with his own color monitor displaying his hand and telling him when to act.

Players discard and draw, in turn, by pressing play buttons. A polarized view screen blocks out side view; a player can never see the display of the players on either side of him. As further protection, each player's cards are displayed face down until the player presses a "peek" button that shows the faces of the cards only for as long as the button is pressed.

At the completion of each deal, the winning hand is determined by the computer and flashed on all screens. Of course, if only one player remains at the end, his cards are not shown.

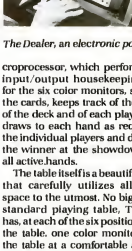
The Dealer is literally the machine analogue of a cardroom dealer, shuffling and distributing the cards, making sure everyone antes up, letting players know whose turn it is to act and correctly determining the winning hand. And it never needs a break!

The Dealer can be set for coin-operated play or for time pay. Typically, each player "antes" a quarter each hand (dropping the coin into the slot at his place), but the machine is easily set (switch-selectable on its interior boards) to deal two, three or more hands per coin deposit. The Dealer keeps the coins, which is how the machine pays for itself.

In time pay, The Dealer deals unlimited hands with no deposit of coins, and the management of the establishment that has rented or bought the machine charges each player an hourly fee for use of the facilities.

(These two methods are analogous to those used by existing cardrooms. In the first method, a house dealer removes a certain percentage from each pot. This is known in the cardroom business as *raking* and the game is a *rake game*. The other method is to charge each player a regular "time collection," or hourly rental fee, for the use of the facilities, chips, cards, license and for the privilege of playing with other players.)

The heart of The Dealer is a Z80 microprocessor, which performs all the input/output housekeeping chores for the six color monitors, shuffles all the cards, keeps track of the contents of the deck and of each player's hand, draws to each hand as requested by the individual players and determines the winner at the showdown among all active hands.



The Dealer, an electronic poker table

The table itself is a beautiful package that carefully utilizes all available space to the utmost. No bigger than a standard playing table, The Dealer has, at each of the six positions around the table, one color monitor set into the table at a comfortable angle plus several player-choice buttons. During actual play of each hand, each player uses the green-felt playing surface at the center of the table to place his actual betting chips above his screen.

Since player bets are completely separate from the quarters fed into The Dealer, the machine has no interest in the pots. The machine merely takes care of all the shuffling, dealing and determining of winner. The players are responsible for making their own bets.

There are several attractions of using such a game over one using real cards dealt by the players. Players who don't think they shuffle well or don't like to deal never have to physically handle any cards. The card distribution is better than that produced by the sloppy shuffling of many players (with winning cards of the previous hand sometimes tending to "stick" together).

Furthermore, the action is faster and smoother, once players master the easy controls. There can be no argument about who has the best hand, and cheating in the form of manipulation of the cards is impossible. It is also impossible to predict the coming sequence of cards, even by someone who has an intimate knowledge of the hardware and the random-number generator.

When the machine is first powered up and initialized, the hardware generates a 32-bit random number. This

See Gambling devices, page 36

MH**MICROPRISE SYSTEM**

MICROHOUSE has designed a package, fully compatible with APPLE hardware and software. The MICROPRISE SYSTEM is a great system at a great price. Everything necessary is included ... even a 1 page, step by step instruction sheet to put it all together.

ENTER THE MICROPRISE SYSTEM.

FRANKLIN ACE 1000	$1595
12" GREEN PHOSPHOR MONITOR	125
SMITH CORONA-LETTER QUALITY PRINTER	700
DISK DRIVE W/CONTROLLER	579
INTERFACE	150
VISICALC	250
BOX OF DISKETTES	50
MISC. CABLES	60
BURN IN/TESTING	100
STEP-BY-STEP INSTRUCTIONS	N/C
TOTAL LIST PRICE	$3634
MICROHOUSE PRICE	$2699

DICTRONICS PUBLISHING, INC.

RANDOM HOUSE ELECTRONIC THESAURUS

THE RANDOM HOUSE ELECTRONIC THESAURUS IS THE FIRST REFERENCE SOFTWARE THAT ALLOWS YOU TO DO "IDEA PROCESSING" WITHIN YOUR WORD PROCESSOR BASED ON THE POPULAR RANDOM HOUSE THESAURUS. IMPROVES YOUR WRITING SKILLS BY FINDING THE RIGHT WORD YOU NEED AND INSERTING IT IN THE TEXT.
THE 60,000 SYNONYM VERSION REQUIRES 204K. ABRIDGED VERSIONS AVAILABLE FOR 80K AND 128K.

LIST PRICE: $150.00 **MICROHOUSE PRICE: $129.00**

PROOF READER

PROOF READER ALLOWS ACCESS TO THE RANDOM HOUSE DICTIONARY WITH FULL INTERACTIVE CORRECTION TO CHECK ALL YOUR SPELLING ERRORS. CP/M VERSION ALLOWS ACCESS UP TO 50,000; IBM VERSIONS ALLOWS ACCESS UP TO 32,000 AVAILABLE WORDS.

LIST PRICE: $ 50.00 **MICROHOUSE PRICE: $39.00**

INFOSTAR MICROPRO

MICROPRO'S DATABASE MANAGEMENT SYSTEM NOT ONLY COMBINES THE ALREADY RENOWNED FEATURES OF DATASTAR AND SUPERSORT BUT ALSO FEATURES A REPORT GENERATOR. THIS MEANS YOU CAN ENTER, SORT, RETRIEVE, ORGANIZE, AND PRINT DATA QUICKLY AND EASILY...AND WITH NO NEED TO PROGRAM! BUT THAT'S NOT ALL...YOU CAN EDIT YOUR REPORTS WITH WORDSTAR, THE WORLD'S #1 WORDPROCESSOR.

LIST PRICE: $495.00 **MICROHOUSE: CALL!**

CALL MICROHOUSE FOR MORE NEW PRODUCT INFORMATION AND PRICING.

WORDSTAR, DATASTAR, SUPERSORT, INFOSTAR ARE TRADEMARKS OF MICROPRO, INC. RANDOM HOUSE IS A REGISTERED TRADEMARK OF RANDOM HOUSE, INC., THE RANDOM HOUSE ELECTRONIC THESAURUS IS A TRADEMARK OF RANDOM HOUSE INC., DICTRONICS PUBLISHING INC. EXCLUSIVE LICENSEE. IBM IS A REGISTERED TRADEMARK OF INTERNATIONAL BUSINESS MACHINES. CP/M IS A REGISTERED TRADEMARK OF DIGITAL RESEARCH.

PRICES MAY VARY WITH DIFFERENT FORMATS. ALL PRICES AND SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE. PLEASE CALL OR WRITE FOR SPECIFICS.

1444 LINDEN ST./BOX 499 BETHLEHEM, PA 18016

DEALERS INQUIRIES WELCOME

WE WANT YOU TO KNOW ...

MICROHOUSE

Gambling devices

continued from preceding page

number is used as the "seed" to generate a random-number sequence. The number generation uses the linear congruential method described in Donald Knuth's standard reference on seminumerical algorithms.

At an average of one minute per six-player hand, the random-number cycle would not repeat for more than 100 years. Even then, since the order of the deck constantly changes due to unpredictable human interaction with the cards, the actual cards dealt when the random-number sequence started to repeat would be different.

Once the random-number sequence is started, it is never restarted during the operating life of the machine. Each random number in the sequence selects the next card to be built from the deck.

When the first hand is played after initialization, the deck is ordered (as in a fresh deck of cards). From that point on, the deck is built from the discard pile in the order that the players discard. This adds a factor of nondeterminance to the deal that is neither controlled by the machine nor discernible to the players.

The random-number sequence is permanently "remembered" by battery-powered memories. In fact, these battery backup circuits protect against power failure. With this feature, even if power is lost in the middle of a hand, the game continues from the point of power loss once the power is restored. Player cards remain the same, and the shuffled deck retains its order.

Cutting of the deck is simulated by providing at the start of each hand, an 8-bit random number that selects the position in the discard pile to become the new top of the deck. Since there are more numbers (in the range 0-255) than cards in the deck and their generation is not in any way related to the operating or programming of the game, no repeating pattern of cards would ever form as a result of the cutting process. The process does, however, provide an additional factor of nondeterminance in the deal.

George Athanas, president of Pacific Electronic Sports Corporation, and a respected engineer in the electronics field, believes the algorithm of shuffling and dealing used in The Dealer to be superior to all schemes currently used in other electronic and electromechanical gaming devices. Athanas is also currently vice-president of marketing for BDS Computer Corporation, a supplier of plug-compatible line-printer systems.

The president and founder of BDS, Haig J. Ermoian, is another founding stockholder of PESC. The third partner is Jerry Reed, a former professional baseball player who has owned and managed several cardrooms in the San Francisco Bay Area.

Rather than install the table in an operating cardroom, PESC felt that it would get better data if it opened a new gaming room to conduct the market test. Consequently, the company obtained a new cardroom license from the City of Palo Alto in California.

Starting with no established customers, with no advertising beyond word of mouth, operating only five days a week with play from 7:00 P.M. to 1:00 A.M. (as opposed to the normal seven-day 10:00 A.M. to 2:00 A.M., or 24-hour, cardroom operation), The Dealer generated $3800 in one month. This approaches the amount that might be generated by a small-limit table in an established cardroom. Players loved the new game.

Athanas, Ermoian and Reed do not envision their product eating heavily into the established cardroom market. In fact, they anticipate resistance from long-time card players who want the "feel" of real cards in their hands.

They expect, instead, to create a new market among those who have not played in cardrooms but may be familiar with video arcada games. Small bars that cannot afford to keep full-time "live" games running would be interested in The Dealer, as would existing video arcades (which could install separate adults-only gaming areas). ■

SOFTWARE CONSUMER SERVICE

INFORMED
IMPARTIAL
INVALUABLE

SPREADSHEET HOTLINE
(800) 334-3404
In California (415) 284-7540

Finally, a reliable source helps you choose the electronic spreadsheet that's right for you—free. Just call ITM. Aided by a unique computer selection process, our consultant can help you choose from the 57 spreadsheets on today's market. And just for calling, you'll receive the comprehensive ITM Spreadsheet Evaluation Guide. It's free.

Free selection service. Free evaluation guide. Call today.

ITM Software Division

Special assistance for consultants.

936 Dewing Avenue, Suite E Lafayette, CA 94549

13-year-olds design games for TI, Apple

By David Needle, IW Staff

"I used to be able to whip out a good game in about a day, but now to be sure of the quality, it takes about a week."

So said Mike Cornelison, the 13-year-old cofounder of Corn Software, "a privately held business" started by Mike and a friend of his (also 13) named Scott Emigh, at Mike's parents' home in Corona del Mar, California.

It all began about two years ago when Mike's father, a training supervisor for American Airlines, bought a Texas Instruments 99/4 home computer (the predecessor of the 99/4A).

"I slipped in a few game modules when he wasn't using it, read the BASIC manual and started programming," recalled Mike matter-of-factly. (He has since supplemented his knowledge by attending computer camp in Santa Barbara, California, for the past two summers.)

Meanwhile, Mike's friend Scott had begun writing games on his family's Apple II computer. The two eventually decided to go into business together (with the aid of Mike's father and another friend) and formed Corn Software, which has two divisions, one for Apple software and the other for TI. The company also employs about 30 other local programmers, many of them teenagers, who are paid on a royalty basis.

Piracy

Mike has written about 50 games for the 99/4A since Corn Software started, of which 36 have proven to be "sellable." The company gets most of its business from ads placed in 99 er magazine, an independent publication in Eugene, Oregon, about TI computers, such as the 99/4A, that use TI's 9900 processor.

Corn is not exactly a threat to the Adventure Internationals and Visi-Corps of the microcomputer-software world as yet.

"We had to spend $200, which is about two-fifths of our bank account, on a protection program for our Apple software," noted Mike. But his firm recently received a $300 order from a dealer that put Corn in the black financially for the first time.

"Piracy is terrible. It takes away from our revenue," lamented Mike. He's grateful, however, for a built-in function in TI Extended BASIC that allows users to protect programs once they're written.

Corn recently received a boost from a somewhat unexpected source, Texas Instruments itself.

While waiting on standby for an airplane flight (the Cornelison family can fly free because of the father's affiliation with American Airlines), Mike struck up a conversation with Bob Hubbard, an account sales manager for *Computerworld* newspaper.

Hubbard, who had met more than a few computer-company executives in his day, though none in Mike's age bracket, told the young entrepreneur

See Young programmers, page 41

WE WILL NOT BE UNDERSOLD

RANA ELITE ONE
APPLE DRIVE CALL

TERMINALS

Zenith ZT-1	$679.00
Zenith ZT-100	$595.00
Televideo 910+	$595.00
Televideo 925	$779.00
Televideo 950	$969.00

RAM

16K Ram Kit for Apple II, TRS80 200 nano seconds; 4116 chips	$17.50

DISKETTES

Maxell 5¼" single side	$39.00
Maxell 8" single side	$49.00
Maxell 5¼" double side	$45.00
Maxell 8" double side	$55.00
BASF 5¼"	$25.95
BASF 8"	$36.00
Verbatim 5¼"	$25.95
Verbatim 8"	$36.00
Wabash 5¼"	$21.95

TELECOMMUNICATIONS

Novation Cat Modem	$139.00
Novation D-CAT	$155.00
Novation AUTO-CAT	$209.00
Novation APPLE CAT	$319.00
Hayes Smart Modem	$249.00
Hayes Smart Modem 1200	$589.00
Hayes Micro-Modem	$319.00
Hayes Chronograph	$229.00
Signalman Mark I	$85.00

COMPUTERS

Sanyo MBC 1000 64K	CALL
Call for information on the complete Sanyo line	
CALIFORNIA COMPUTER SYSTEMS	
Mainframe 2200a	$485.00
Z-80 CPU 2810a	$265.00
64K RAM 2065	$569.00
Floppy Controller 2422a	$369.00
ZENITH	
Z-89 48K	CALL
Z-90 64K	CALL
Z-100	CALL
Call For Prices On The Complete Zenith Line	
Casio FX702P Pocket Computer	$179.00

SOFTWARE

MICROPRO®	
WordStar	$239.00
MailMerge	$89.00
Customization Notes	$359.00
SpellStar	$239.00
DataStar	$199.00
CalcStar	$199.00
MICROSOFT	
Basic interpreter	$349.00
Basic Compiler	$389.00
Fortran 80	$499.00
Cobol 80	$695.00
DATA BASE	
dBase II	$495.00

The CPU Computer Corporation Announces:

CPUnet

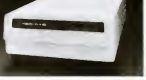
The Local Area Network that uses real CP/M® for Apples. CPUnet® allows you to run hundreds of popular CP/M® programs, on your Apple terminals, without disk drives! Call for more information.

$2995.00

APPLE ACCESSORIES

Z-80 Card by Microsoft	$319.00
16K Card by Microsoft	$165.00
32K Card by Saturn	$199.00
Keyboard Enhancer II by Video	$125.00
Videoterm by Video	$299.00
Game Paddles by TG	$49.00
Joystick by TG	$49.00
Paddle Cards	CALL
ALF 3 Voice Board	$229.00
System Saver by Kensington	$75.00
Microbuffer II 16K w/graphics	$259.00
Microbuffer II 32K w/graphics	$229.00
APPLE INTERFACE CARDS BY CCS	
Serial Asynch #7710	$139.00
Centronics #7729	$149.00
ADVANCED LOGIC	
Add-Ram 16K Card	$79.00
Z-Card CP/M for the Apple II	$225.00
Smarterm 80/Column Board w/Softswitch	$249.00

CORVUS HARD DISC
20 mg with mirror
$5389



APPLE SOFTWARE

MICROPRO®	
WordStar	$199.00
MailMerge	$99.00
SpellStar	$149.00
DataStar	$199.00
CalcStar	$199.00
VISICORP	
VisiCalc	$199.00
VisiTerm	$79.00
VisiDex	$199.00
VisiPlot	$169.00
VisiFile	$199.00
VisiSchedule	$259.00
VisiTrend/Plot	$239.00
MISCELLANEOUS	
Micro/Terminal	$79.00
Screenwriter II	$129.00
Executive Briefing System	$169.00
Supercalc	$279.00
Personal Filing System	$115.00
PFS Report Writer	$75.00
Word Handler	$169.00

SPECIAL OF THE MONTH
SANYO MBC 1000
INCLUDES
WORDSTAR, CALCSTAR
CCI ADD-ON DRIVE
$2195.00

DEALER INQUIRIES PLEASE
CALL 1-800-343-7036

For fast delivery, send certified checks, money orders, or call to arrange direct bank wire transfers. Personal or company checks require one to three weeks to clear. All prices are mail order only and are subject to change without notice. Call for shipping charges.

IDS MICROPRISM
110 CPS NEW

PRINTERS

NEC 7710 Serial	$2395.00
NEC 7720 KSR	$2749.00
NEC 7730 Parallel	$2395.00
NEC 3510 Serial	$1850.00
NEC 3530	$2099.00
NEC 3530 Parallel	$1850.00
NEC 3550 for the IBM PC	$2095.00
Anitex "Generic Model of the Prowriter"	$479.00
Epson MX-80	CALL
Epson MX-80FT	CALL
Epson MX-100	CALL
IDS Micro Prism	CALL
IDS PRISM 80	CALL
IDS PRISM 132	CALL
Okidata Microline 80	CALL
Okidata Microline 82A	CALL
Okidata Microline 83A	CALL
Okidata Microline 84	CALL

MONITORS

Sanyo 9" B&W	$159.00
Sanyo 9" Green	$155.00
Sanyo 12" B&W	$179.00
Sanyo 12" Green	$199.00
Sanyo 10" Color	$399.00
SMD 13" Color	$329.00
Zenith 13" Green	$99.00
Zenith 12" Color	$339.00
Electrohome 13" HI-RES Color Monitor	$629.00
Electrohome 13" Color	$379.00
Electrohome 12" B&W	$179.00
Electrohome 12" Green	$189.00
Electrohome 9" B&W	$149.00
Electrohome 9" Green	$159.00

DISK DRIVES

CCI 100 for the TRS-80 Model 1 5¼" 40 track	$229.00
CCI 189 for the Zenith Z-69 5¼" 40 track	$379.00
CORVUS 5M with Mirror	$3089.00
CORVUS 10M with Mirror	$4489.00
CORVUS 20M with Mirror	$5389.00
CORVUS Interfaces	CALL
RANA SYSTEMS add-on Disc Drive for the Apple II	
Elite Two 40 Track	CALL
Elite One 40 Track	CALL
Elite Controller	CALL
Tendon TM100-2 for the IBM	CALL

IBM PC ACCESSORIES

64K Card by Microsoft	$435.00
Joystick by TG	$49.00
128K Card	$579.00
192K Card	$629.00
256K Card	$690.00
Quadram	CALL
Combo Card by Apparat	$249.00
Call for more IBM PC add-ons	

IBM PC SOFTWARE

INFORMATION UNLIMITED	
Easy Writer	$289.00
Easy Speller	$149.00
Easy Filer	$319.00
VISICORP	
VisiCalc 256K	$199.00
VisiFile	$219.00
VisiTrend/VisiPlot	$259.00
VisiDex	$209.00
VisiTerm	$99.00
MICROPRO®	
MailMerge	$119.00
WordStar	$299.00
MISCELLANEOUS	
Supercalc by Sorcim	$279.00
Supervriter by Sorcim	$289.00
Home Accounting Plus	$139.00
ENTERTAINMENT	
Deadline	$39.00
Temple of Apshai	$29.00
Curse of Ra	$15.99

Call For More IBM Software And Accessories
CP/M is a registered trademark of Digital Research.

The CPU Shop

master charge

TO ORDER CALL TOLL FREE 1-800-343-6522
420-438 Rutherford Ave., Dept.IF1012, Charlestown, Massachusetts 02129

VISA

HOURS 9 AM – 9 PM (EST) Mon.-Fri. (Sat.'til 6)
Technical Information call 617/242-3361

TWX-710-348-1796

Massachusetts Residents call 617/242-3361
Massachusetts residents add 5% Sales Tax

CHRISTMAS ON DISPLAY

Story and photos by Deborah Wise, IW Staff

Christmas is on display in New York. The avenues of shops are decking their windows with more than holly as recession-hit retailers try to lure dollars from Yuletide consumers.

Video games and video-game systems are high on everyone's list, but there are more imaginative offerings in the field of electronics.

Take Hammacher-Schlemmer, for example. This novelty store, founded in 1848, caters to the rich who don't care how much they spend to gratify a whim.

Last year, *InfoWorld* wrote about the Hammacher-Schlemmer Robot. We were a year too soon; the store was not able to deliver the product.

This year's catalog, however, contains another robot that the manufacturer, Robotics International Corporation from Michigan, promises will be ready for delivery in January. Hammacher-Schlemmer has already taken ten robot orders.

The robot, called Jenus, costs $7995. For that hefty sum, you get a 52-inch-tall robot with an on-board Apple Computer and vacuum cleaner. Jenus can talk, clean up, remember the layout of a house, answer commands from its owner, answer the door and even serve drinks, according to John Collins, president of

Above: The Diet Cube signals a time to eat and a time to abstain. Below: To play chess against a robot-arm opponent, you'll have to pay $1495.

Above: Lights glow on the Christmas tree at Henri Bendel in New York City. Below: This chic ball-point pen and calculator combination costs $50 at Henri Bendel.

Above: Pro Golf Swing Analyzer Right: Punch in the type of expense incurred and the amount on your own PEAR. Below: Unusual domino-clock timepiece costs $39.95

AREN'T YOU LUCKY GAME DESIGNERS

THE MIRACLE OF CREATION CAN BE YOURS™

Introducing a Game Development System for the Atari® 2600 VCS™

We call it the **FROB™** and we supply you with just about everything you need.*

You get an Apple® peripheral printed circuit board and an in-circuit emulation cable and two cartridge adapters and a diskette full of software subroutines and a user's guide to the system and a subscription to the FROBBER™ newsletter and a one-year software update service and licensing support for your game concepts. Now available for the Atari 5200 HES™.

Another Miracle from the FROB Family

If you wish to know more, call 408-429-1552 or write to: FROBCO, a Div. of Tri-Comp Polytechnical, Inc., P.O. Box 2780, Santa Cruz, CA 95063

*Requires an Apple II and Atari VCS with no modification to either machine. Atari and Apple are registered trademarks of Atari, Inc. and Apple Computer, Inc. respectively. VCS and HES are trademarks of Atari, Inc.

At last: A Graphics Workstation At a Price You Can Afford

When we sat down to design the Logitech Graphics Workstation Kit, we knew what we wanted. We wanted to give users an elegant professional graphics capability — the kind of terminal graphics *that looks like a printed page*. We wanted to offer the graphic power and flexibility of the Xerox Star or SUN workstation at a reasonable price. We think we've succeeded. Gloriously. And so we want to celebrate. But *how?*

We could make fancy speeches about the dazzling visuals you can program on a graphics workstation powered by our **16-bit 8086-based single board computer.** We could fire skyrockets over our **256K Dynamic RAM board.** We could pop champagne corks over our **high resolution raster graphics controller.** And we could go dancing to the stars over our **Swiss Mouse,** a versatile cursor mover designed at the Federal Institute of Technology in Lausanne, Switzerland.

But we want you to celebrate too. And so, until the end of January, we're offering professional graphics capability at an introductory price of $3,695 for the three-board kit, and $2,795 for the two-board kit. By the way, all the boards are available separately. Besides the boards, each kit contains the Logitech Mouse, a BIOS suitable for implementation of CP/M-86 and MP/M-86 and a reference manual.

Everything you need to go dancing to the stars.

By Logitech. *Of Course.*

165 University Ave., Palo Alto, CA 94301 ☎ (415) 326-3885

Robotics International.

Other Christmas goodies are pictured. They include:

- A $19.95 electronic eating regulator called the Diet Cube that shows green, yellow and red lights at different intervals signaling when you can eat and when you must rest.
- A $495 Pro Golf Swing Analyzer. You swing over the synthetic turf and sensors tell you how far and where your shot would go.
- A robot chess game. You and your robot-arm opponent make the moves on this magnetic metallic board. It costs a cool $1495.
- A clock that tells the time, using dominoes, for $39.95.

Even the traditionally chic New York stores are going electronic. Four blocks west of Hammacher-Schlemmer on 57th Street at Henri Bendel, amid the perfume and silk, the electronically minded can pick up a $stoles ball-point pen calculator for $50. Bendel's is also selling a $30 "watchman" stereo. The store's publicity director, Nina Santisi, tried it out for the photograph.

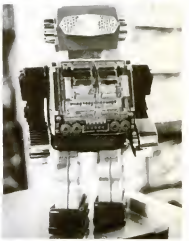
No Christmas shopping tour of New York is complete without a visit to FAO Schwartz, the world-famous toy store. Here, the electronic wizardry is hidden behind the more traditional fluffy stuffed animals, train sets and delicate dollhouses that have taken their places beneath Christmas trees for decades.

FAO Schwartz does have a busy video-game section, but it doesn't specialize in electronic toys. Instead of intelligent robots, it's selling a line of less advanced, but quite charming, good old battery robots.

The jingle of money mingles with the sound of Yuletide bells as busy New Yorkers stock up on stocking stuffers. ■

Above: Robot gladiators at FAO Schwartz. Top right: The Windmill measures lung power. Lower right: Predict weather with Digital Weather Console.

Above: Nina Santisi demonstrates the "watchman" stereo. Right: A deluxe battery-operated robot priced at $50 at FAO Schwartz Below: Diet Trac calorie counter is on sale at Hammacher-Schlemmer. Below left: Antiheadache Biofeedback System helps you keep well this holiday season.



CONFUSED ?

Investing in a computer can be confusing ...
We don't just sell computers ... We sell solutions !

Systems	Software	Monitors	Printers
BASIS: The Alternative	WORD HANDLER	AMDEK	EPSON
TELEVIDEO	FORMAT II	COMREX	COM-RITER
NORTHSTAR ADV.	WORDSTAR	NEC	ANADEX
	d BASE II	USI	NEC

Word Handler & List Handler: $179.00 (Dealer's invited)

Up to 35% off!!!

CALL FOR PRICES & CONSULTATION

SAVVY™...the PERSONAL LANGUAGE™

303-694-3428

9-6, M-F

THIRD WAVE

9959 E. Peakview, D102
Englewood, Co 80111

Writers! We've taken the paperwork out of writing. The Osborne™ Personal Business Computer. And WORD·PAC.™

Author Peter DeVries once said, "I love writing. It's the paperwork I can't stand."

The Osborne Personal Business Computer is an outstanding writer's system, because it automates the paperwork of writing. Quickly and easily.

Only $1795 delivers a complete computer including WORDSTAR® software for extensive word processing. The portable Osborne system fits the work style of writers (you can take it wherever you want), yet the system compares with dedicated word processors costing several times more.

Communications options connect you to a variety of information banks, for research or brainstorming, or for shipping documents electronically, over telephone lines.

And now, the WORD·PAC brings even more efficiency, accuracy, speed and fun to the writer using the Osborne Computer.

Five packages to check your spelling, analyze your grammar, handle footnoting, indexing, and even arithmetic.

Osborne. The best thing for writing since the invention of royalties.

For your nearest dealer, call (in California) 800 772-3545 ext. 905; (outside California) call 800 227-1617 ext. 905.

OSBORNE™
COMPUTER CORPORATION

WORD-PAC HOLIDAY SPECIAL. $295 buys you: Spelliguard (spelling checker), Grammatik (grammar style checker), Footnote, Math™, and Documate/Plus (contents/indexer). A $995 value. Only $295.

Trademarks: WORD-PAC: Osborne Computer Corporation • Spelliguard: Innovative Software Applications • Grammatik: Aspen Software Company • Math™: Force Two, Limited • Documate/Plus: The Orthocode Corporation. Registered Trademarks: WORDSTAR: MicroPro International of San Rafael, California • Footnote: Pro/Tem, Inc.

Young programmers

continued from page 37

he might be able to set up a meeting with Fred Bucy, the president of Texas Instruments.

A few weeks later, Mike, his father and partner Scott were flying to TI's headquarters in Dallas, Texas.

"They gave us a royal tour; it was very impressive," recalled Mike.

Part of the "tour" included an hour-long meeting with Bucy. "We talked about the machine (the 99/4A), and I told him just what I liked and didn't like about it," Mike said.

Although Mike is quick to defend the 99/4A as "a good system," he said he did complain to Bucy about a few alleged quirks.

More games for kids

"They could have included a catalog statement in their [programming] languages, instead of making you write a program [or plug in a separate disk or cartridge to read a directory]."

Mike's other complaint to Bucy might seem surprising, coming from a third-party software vendor for the TI computer. "I told him I wished TI would develop more game software so more kids would buy the machine. I showed five friends of mine some of our games [on the 99/4A], and they all went out and bought [systems]. If there were more games, more kids would buy the machine."

Mike said he didn't discuss marketing some of his software through TI with Bucy because "I didn't want to impose, and besides I enjoy keeping the company small." Still, Corn benefited from the visit to TI headquarters.

"I couldn't believe how generous they were," noted Mike, who received a programmer's calculator, literature on machine language, ("that will really help us") a memory-expansion board and TI Logo, compliments of TI.

Inside TI headquarters, Mike got a first-hand view of how TI manufactures silicon chips. He also toured the speech laboratory where TI is conducting advanced research on electronically recorded speech and other speech-synthesis technologies.

"I really came away with a higher opinion of the company, because they respected two teenagers enough to listen to our ideas and help us out with their own ideas," Mike said.

Professional package

Corn's production costs are minimal. Programs are recorded onto blank diskettes (also onto cassettes) and packaged in Ziploc plastic baggies. There is also some colorful artwork (done by a neighborhood friend) inside each baggy, and the overall package looks "very professional," according to Mike.

Corn hopes to expand its line of software to include educational and utility programs, but Mike concedes, "They're just not as much fun to do."

Prices for both Apple and TI software from Corn range from $6.95 to $17.95.

Mike is particularly enthusiastic about the company's offering for the TI computer, an action game called Varg.

"The plot is that the president is kidnapped by Mongoloids from the planet Mongos. As the head of the secret service, you (the player) have to get through ten screens (or levels) to rescue him. It's really ten games wrapped into one; every time you reach a higher level, it automatically loads a new game," explained Mike.

Players who reach the tenth level of Varg and send in a photo proving that they've reached that level receive a sticker from Corn attesting to their prowess. Not bad marketing for a nine-month-old start-up company.

Asked whether he intends to stay in the computer field, Mike responded, "I'm really more of an entrepreneur than a computer person. I'd like to start more businesses, but I'm sure I'll stay with Corn for a long time. There aren't enough software companies to serve all the TI users out there." ■

(Left to right): Scott Emigh and Mike Cornelison of Corn Software meet TI Consumer Group president William Turner and corporate vice-president of research development and engineering George Heilmeier.

Franklin's ACE1000 Runs With The Best!

VisiCalc®, DB Master®, Desktop Plan®—they are all running on the Franklin ACE 1000. Cash flow, budgets, word processing or data base management, business or pleasure, the ACE 1000 runs with the best.

The Franklin ACE 1000 is hardware and software compatible with the Apple® II. Franklin users can choose from an enormous selection of programs—programs that run better on the ACE because it includes 64K of RAM, upper and lower case, VisiCalc keys, a numeric pad and an alpha lock key.

Run with the best. Call or write today for the name of your local authorized Franklin dealer.

FRANKLIN
COMPUTER CORPORATION
7030 Colonial Highway
Pennsauken, NJ 08109
609-488-1700

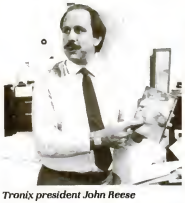
New game maker acknowledges banking origins

By Scott Mace, IW Staff

What on earth is the designer of Citibank's automated teller doing running a game-software company?

Actually, the two computer applications have a lot more in common than you might think. Games and automated tellers are two of the first computer functions that were turned directly over to the user. For many, these two applications allow them to give orders to a computer for the first time in their lives.

Tronix, the Inglewood, California, company that John Reese started after



Tronix president John Reese

leaving Citicorp, is producing games for the VIC 20 and Atari home computers. Softsel, a major software distributor, started Tronix after Reese concluded it was time for the distributor to invest in the home-software market, and time for him to head up the effort.

The first games from Tronix—Kid Grid, Sidewinder, Galactic Blitz and Swarm—are standard versions of games popularized on other computers. These games include standardized user-control features, however. The VIC games, which use assembly language to cram as much sound and fury into 3800 bytes as possible, are sure to grab the attention of the million or so VIC owners eager to rise above the usually crude graphics the machine provides.

Reese is the banker turned software-company president who is running around the country, trying to get the new games in as many stores as possible by Christmas.

The current focus on home arcade games is deceptive, though, since Reese comes from a background heavy with terms such as home banking, videotex and two-way cable. A few years ago, he was running a research lab in New York for Citicorp subsidiary Transaction Technology Incorporated (TTI), a company that was investigating home banking via phone, cable and personal computers.

Reese left TTI because the home-banking concept still hadn't gotten far from the laboratory. At his going-away party at Citicorp, he ran into an old friend, Bob Leff, one of the executives at Softsel, who had been Reese's "star pupil" at TTI.

Both Reese and Softsel noticed there was a lack of good games for low-end personal computers. Of the VIC, Reese said, "There are a lot of folks out there crying for some fun." Reese also considers the game market as a foot in the door for more home-software offerings later on, though.

Thus was Tronix born. Reese resolved to stuff as many features into the games as possible (one has 40 levels of play) and to design a standard user interface, with certain keys or buttons dedicated to certain directions or to functions such as restart.

Reese also noticed that left-handed players had trouble with many keyboard controls and so he had "switch-hitter" options put into the games.

Reese went to UCLA student Jimmy Huey for three of the games, while computer-science graduate Arti Haroutunian programmed Kid Grid.

Huey wanted to make sure the games were challenging. "Originally, I created Sidewinder because I felt players were mastering other video games too quickly," Huey said.

Sidewinder, which owes some of its concepts to Defender, is so fast that Reese had a training mode added for adults. In this handicapped mode, the slower-thumbed adults could learn how to play Sidewinder while it ambled along at half-speed.

Furthermore, if the speed of the adult version is too fast, Sidewinder, like all Tronix games, has a pause button.

See Tronix, page 43

Galactic Blitz, new game from Tronix

If you just bought another computer, boy are you gonna be sorry.

Epson.

Test yourself and take InfoWorld's Nth trivia quiz

By Michael Swaine, IW Staff

It's been a long time since we've had a trivia quiz, and it's not clear why that is. Is it that our readership, grown hidebound and stodgy since the frivolous days when they and microcomputing and *InfoWorld* were young, can no longer stomach such intellectual pabulum, and that we, ever sensitive to our readers' inner needs, crossed such fare off the menu?

Or have we at *InfoWorld* grown so large a collective head as to be incapable of stooping to anything so trivial as, um, trivia, without suffering incapacitating vertigo?

Maybe we just forgot. In any case, the microcomputer industry, for all its vaunted maturity, is as full of trivia today as it has ever been.

So, apropos of our games theme this week, we present the Nth *InfoWorld* trivia quiz. No prizes of any kind will be awarded: no free t-shirts with tacky four-color advertisements imprinted on them; we won't even mention your name if you send us your answers. (We promise.) If we feel like it, we'll print our answers—the correct ones—in our next issue.

Maybe you know, and you should know if you read the profile of Les Solomon in our November 29 issue, that the Processor Tech Sol computer was named after Les Solomon, then technical editor of *Popular Electronics*, or that Les Solomon's adolescent daughter named the MITS Altair computer. But do you know the adolescent jokes behind the naming of these two companies: Soroc and Sorcim?

Sometimes companies outgrow the names taken in their exuberant youth, and would just as soon not be reminded of them. What company founders could you embarrass by bringing up these all-but-forgotten company childhood nicknames? Kentucky Fried Computers. Computer Shack. *Kilobyte* magazine. The *Intelligent Machines Journal*. Intergalactic Digital Research.

Let us also lift for a moment above the wash of time the names of the people who performed the miracles, the engineers and programmers who created the microcomputers and programs that in their turn made fortunes, for whomever.

Of course you know who designed the Apple II, but can you name the designer of the TRS-80? Adam Osborne didn't design the Osborne 1, but did Clive Sinclair design the Sinclair ZX-81? Who designed the IBM PC?

Who were the programmers who wrote these significant software products: VisiCalc, WordStar and Little Brickout, one of the first games for the Apple?

Not all technical writers are unsung. Can you name the now-famous tech writer who wrote the documentation for the Intel 8080 microprocessor? ■

The new Epson QX-10 is unlike any personal computer you've ever seen. It's a computer for people who don't have the time to learn computers; a computer you can be using within minutes.

And fortunately, you don't have to take our word for it. Here's how *Byte*, one of the computer industry's most prestigious magazines, describes the QX-10.

The first anybody-can-use-it computer.
"The Epson QX-10 (is) a computer for less than $3000 that may well be the first of a new breed of anybody-can-use-it 'appliance' computers ... In addition to being a highly integrated word processing/computer system that offers as much usable processing power as almost any existing microcomputer, the QX-10 ... system is designed to be used by people with minimal technical knowledge. We've certainly heard that claim before, but Epson has delivered on this promise in a way and to an extent that *no* microcomputer manufacturer has done."

That's nice to hear from a magazine like *Byte*, of course, but it doesn't surprise us. It's just what we intended the QX-10 to be all along.

More computer. Less money.
But useability isn't the only thing the QX-10 has going for it. As *Byte* says, "the QX-10 gives you a great deal for your money.

"Help is available at any time through the HASCI (Human Application Standard Computer Interface) keyboard Help key ... Text can be entered at any time just as you would in a conventional word processor. The Calc key turns the system into a basic 4-function calculator. Graphics can be created via the Draw key. The Sched (schedule) key gives you access to a computer-kept appointment book, a built-in clock/timer/alarm, and an event scheduler."

Advanced hardware for advanced software.
As for hardware, *Popular Computing*, another industry leader, says: "The QX-10 includes ... a number of advanced hardware features ... The basic components of the system are a detachable keyboard, a high resolution monochrome display, and a system unit containing two 5¼ inch disk drives. The drives use double-sided, double-density disks (340K bytes per disk) and are amazingly compact ... The QX-10 uses an 8-bit Z80A microprocessor. The system contains 256 bytes of RAM. Some of the RAM is ... battery powered ... which lets the computer retain information when the power is off."

You won't have to wait much longer.
The new Epson QX-10 may very well be the computer you've been waiting for. And fortunately, you won't have to wait much longer — it will be appearing soon in computer stores all across the country. In the meantime, write Epson at 3415 Kashiwa Street, Torrance, CA 90505, or call (213) 539-9140. We'll be happy to send you copies of our reviews.

After all, as *Popular Computing* puts it, the QX-10 will "do for computing what the Model T did for transportation."

And we couldn't have said it better ourselves.

EPSON
EPSON AMERICA, INC.
COMPUTER PRODUCTS DIVISION

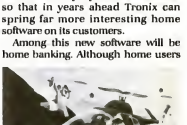
3415 Kashiwa Street
Torrance, California 90505
(213) 539-9140

Tronix

continued from preceding page

Ultimately, Reese is not searching solely for big profits from games, although he admits there is a lot of money in Atari and VIC software. Brand-name loyalty is Reese's desire, so that in years ahead Tronix can spring far more interesting home software on its customers.

Among this new software will be home banking. Although home users



Sidewinder has a training mode to slow its speed for beginning players.

won't be able to make a deposit or get cash, they will be able to see what their balance is, make various money transfers and obtain other information via their home computers.

It's still too early to say exactly when the hookups will be made or by whom, but Citicorp will deploy one nationwide home-banking service, Homebase, in 1984 or 1985, Reese said.

The biggest reason home telecommunications hasn't blossomed so far, Reese said, is the lack of reasons for a home user to communicate over videotex. Nevertheless, the information providers will be in place before the end of the decade.

In the meantime, Tronix has moved quickly after incorporating just a month ago. Tronix software will be distributed through Softsel and other distributors as well as mass-market supplier of the VIC and Atari 400. Reese is looking at several programs for future release, but he is picky.

"A good game should have a life span of at least a year," Reese noted. "I don't like the quality of a lot of software I see." One machine he'd like to pursue is the TI Home Computer, but so far he hasn't found the right software to market. ■

Shrinking Pac-Man leads game-wristwatch market

By Tom Shea, IW Staff

In the musical *Oklahoma!*, a cowpoke sings about burlesque performers in the big city, who have "gone about as far as they can go." Now the makers of digital watches have gone about as far as they can go, too. Or so it seems. Pac-Man and the whole family of video games have shrunk. Now, they are being marketed as wristwatches by several enterprising watch companies.

Bally Midway Manufacturing of Franklin Park, Illinois, father of the famous Pac-Man arcade game, has now licensed more than 600 Pac-Man products. Among the 600 is the Pac-Man Game Watch, manufactured by Nelsonics of Long Island City, New York.

On a simplified game maze, the Pac-Man Muncher moves among ghost monsters and energy-food dots to the tune of (optional) sound effects. The watch automatically records your highest game score and provides ever-harder levels of difficulty. The Pac-Man watch also tells time and has a musical alarm.

For $34.95, suggested retail, you can munch dots to your heart's content. Best Products discount houses are selling the watch for $24.87.

Nelsonics was the first company in America to come out with a game watch, according to spokesman Bernie Frieder. Last Christmas, the firm introduced the Space Attacker watch, a game watch that requires the player to shoot down UFOs with missiles. This year, in addition to the fast-selling Pac-Man watch, the firm is selling two other games that strap to the wrist: Tank Battle and Sea Ranger.

How involved can a player become in such tiny game screens? "You'd be surprised," Frieder says. "It's easy to get engrossed in the game. It's pretty realistic."

Nelsonics, a division of the larger watch-making firm of M.Z. Berger of New York City, has already sold more than half a million of the Pac-Man watches, Frieder says. The firm will unveil two new game watches early next year. Frieder won't say what they are until their debut at the upcoming Consumer Electronics Show.

The late Chester Gould, creator of the Dick Tracy comic strip, never tired of predicting the development of a two-way wrist TV. It hasn't happened yet, but watchmaker Armitron Corporation of Long Island City, New York, is selling a one-way wrist radio. The Trac I AM Radio Watch includes a set of lightweight headphones that plugs into a jack on the side of the watch.

With ASCOM...

personal computer communication has never been this easy.

That's why Big 6 accounting firms and Fortune 500 companies use ASCOM.

ASCOM is an interactive microcomputer telecommunications program for timesharing and data transfers. It is easy to use because it employs menus, simple commands and features an on-line help facility.

A typical use of ASCOM is to access a data base to retrieve data for storage and analysis on your microcomputer. It can also be used to transmit program files to another machine running ASCOM. This can be done locally through direct connection, or over telephone lines by using a modem.

ASCOM works on IBM PC, MS-DOS, CP/M-86, and CP/M-80 compatible micros.

WESTICO
25 Van Zant Street • Norwalk, CT 06855
(203) 853-6880 • Telex 643-788

Dial up our 24-Hour Computer Hotline for 300 baud modems: (203) 853-0816

☐ Please send me an ASCOM program & documentation: $175.00 *
☐ The ASCOM documentation only: $30.00 *
☐ FREE Catalog of over 250 available programs.

C.O.D. ____ Visa ____ MasterCard ____
Card No. ____ Exp. ____
Model of Micro ____ 5¼" ____ 8" ____
Name ____
Company ____ Tel. ____
Address ____
City ____ St. ____ Zip ____

(*Plus $3.00 shipping and handling in N. America. Ct. residents add 7½% sales tax.)

ASCOM is a trademark of Dynamic Microprocessor Associates. CP/M is a trademark of Digital Research
© Copyright 1983 Westico, Inc WA + 1

ASCOM features:
- Works with modems or by direct connection at speeds from 110 to 19,200 baud.
- Transfers both text and program files between computers.
- Protocols to synchronize large file transfers.
- Remote mode permits control of another micro running ASCOM.
- Automatic processing with command files.
- Commands for displaying directories and files.

To order ASCOM, call or write today:

WESTICO
The Software Express Service
25 Van Zant Street • Norwalk, CT 06855
(203) 853-6880 • Telex 643-788

KEY MICRO
offers you
The Best of Both Worlds

MP/M 8-16

Compupro's Proprietary Implementation of MP/M 86. MP/M 8-16 is a Multi-User operating system that allows you to run 8 and 16 bit software at the same time.
Hardware & Software Available for Immediate Delivery.

Software Products from KEY

RM/COBOL
Ansi 74 Cobol for CP/M

COGEN
R/M Cobol Program Generator
Demo Disk Available

EASYKEY
Wordstar Made Easy for Televideo 950 & 800 series.

Your Authorized
CompuPro
SYSTEMS CENTER

KEY
MICRO SYSTEMS INC.
978 Tugue Avenue, Cranston, RI 02910
(401) 626-7270

And Now in the Boston area
822 Boylston Street, Suite 201
Chestnut Hill, MA 02167
(617) 738-7305

MP/M & MP/M 86 are trademarks of Digital Research
Compupro is a trademark of Godbout Electronics
R/M COBOL is a trademark of Ryan-McFarland Corp.
COGEN is a trademark of bytek
Wordstar is a trademark of Micropro International
Televideo is a trademark of Televideo Systems Inc.

Volume and tuning controls are located on the face of the watch, just under the digital display.

The Radio Watch displays hours, minutes, seconds, month, day and date; it also includes a chronograph and alarm. The suggested retail price is $39.95; Best Products has it on sale for $19.99.

Armitron sells a full line of watches, analog and digital; the firm has been in the watch business for 26 years, but only recently has it come out with game watches.

Also strapped to the nation's wrists are watches with calculators that let you add, subtract, multiply, divide and store numbers in memory; chime every hour; make a musical note when

Calculator watch by Timex

you key in a number; keep track of lap time when you jog; and sound daily and weekly alarms.

Of course, they also tell time. Timex's calculator watch has all these features and sells for $29.95. Timex has steered clear of game watches, at least so far. A spokesman for the big watch firm says Timex doesn't go for trends, but instead sells watches that last a long time.

Armitron also sells a calculator watch that includes a melody alarm and chronograph for $39.95, suggested retail. Consumers Distributing is selling the men's Calculator Musical Alarm watch for $27.97.

Radio Shack stores are stocking a Calculator Alarm Watch, too. The watch combines a four-function calculator with time, calendar, alarm and stopwatch functions.

Tandy/Radio Shack is also selling the Fire-Away Game Watch this year, which features two space-war games. The watch displays time, month and date, and it includes a 24-hour alarm and hourly beeper. The Fire-Away watch is selling at local Radio Shack stores for $24.95.

There are two other timepieces on the market that, although they are not games, should be mentioned for their novel use of digital electronics.

Radio Shack's VoxClock literally "tells" you the time with a voice-simulation chip. The unit looks like a simulated-walnut box with a speaker and button on top. When you press the button VoxClock tells you the time, including A.M. or P.M. It also automatically tells the time every hour.

Armitron's Musical Worldtimer LCD Watch displays a world map with 19 time zones. The dual alarm plays two tunes: "Around the World in 80 Days" and "It's a Small World." Suggested retail price is $59.95, but Consumers Distributing is selling it for $44.97. ■

NO NONSENSE PRICES, WE DON'T OFFER LOW PRICES, WE DELIVER!
OUR POLICY IS TO MEET OR BEAT ANY NATIONALLY ADVERTISED PRICE

Our **800-922-9200** number is available 9 a.m. to 9 p.m. Monday to Saturday, and from 12 p.m. to 6 p.m. Sunday. Our in store number is area code **619-726-7784** also available the same hours. CA. callers - 3.00 off on orders over 200.00. **Will call in store**, same hours.

SAME DAY SHIPPING

HARDWARE	
MICROSOFT PREMIUM PACK	450.00
MICROSOFT 16K RAM CARD	95.00
RANA ELITE ONE DRIVE	CALL
RANA CONTROLLER	CALL
MICROSOFT Z-80 CARD	225.00
HAYES MICROMODEM II	255.00
NEC 8023-A PRINTER	475.00
EPSON MX80FT w/GRAFT	CALL
NEC ECONO GREEN 12"	125.00
AMDEK 300 HI-RES GREEN NON-GLARE	169.00
AMDEK COLOR I	339.00

SOFTWARE	
MICROPRO WORDPACK (APPLE) (WORDSTAR, SPELLSTAR, MAILMERGE)	285.00
MICROPRO DATAPAK (APPLE) (DATASTAR, CALCSTAR, SUPERSORT)	285.00
MICROPRO WORDSTAR (APPLE)	185.00
VISICALC	165.00
VISIFILE	165.00
ASHTON TATE DBASE II (APPLE)	435.00

ALL SOFTWARE FOR APPLE, IBM, ATARI, TRS-80, XEROX 820, S-100
IBM 64K, COLOR BOARD, 2 DS/DS TM100-2
NEC GREEN SCREEN 2999.00

Terms: Cash, cashier check, money order, add 3% Master Charge/Visa, add 1% for personal check. CA. residents add 6% tax, shipping charge quoted at time of order - UPS service unless otherwise specified. Include name, address & telephone number on mail orders. Our store is located at Suite #1, 977 South Santa Fe Ave., Vista, CA. 92083. All prices subject to change and availability.

GLEN S. MASON COMPUTER SOFTWARE AND SALES
800-922-9200 VISTA, CALIFORNIA 92083 **619-726-7784**

LYNC
DATA COMMUNICATION THE EASY WAY

Hello, my name is Bernie Mohrbacher. I write programs and design computer hardware. If you are looking for a good data communication program, please consider the following.

FEATURES: With **LYNC** you can - transfer any type or number of files with automatic error correction * List directorys and select drives of both computers from either end * use any one of 5 transfer modes for interacting with timeshare systems * See real time display of total bytes sent or received *

DOCUMENTATION: Our manual is constantly being updated to give you information on new computers and modems. Installation requires no programming on your part. Instead, a special program sets up and checks out **LYNC** on your computer.

SUPPORT: You may not need any help using **LYNC** - but its good to know its there if you need it. If one of our staff can't solve your problem, you can talk to me - that's a promise.

PRICE: CP/M or IBM versions (specify disk format) $125
TRS I or III version $75
TERMS: Check, VISA/MC or C.O.D.
Phone: 1•805•964•7959
Midnight Software
Santa Barbara, California

Happy Holidays From InfoWorld

Editorial

Stop playing games with games

The surgeon general says video games can be hazardous to your health. He might be right—for the wrong reasons. Many games lack a few simple features that could make them far more enjoyable. This Christmas, consumers should be careful what ends up in their software stockings, because a lot of it could launch the players into fits of unhealthy rage and frustration.

Here are some of the most annoying habits of bad home-computer games, as determined by resident gamesters Palmer D. Quinlan and Allen Gibson:

- **The nonstop nightmare.** Nothing is more frustrating than reaching 100,000 on Space Typhoid and being called away by the phone, the boss or the spouse. This is especially taxing, though, if the game cannot be frozen until you return. Yet many game makers persist in leaving out this important feature.
- **High score today, gone tomorrow.** How difficult can it be for a computer to save the highest game score to date to the game disk? Only a handful of game makers add this feature. Lack of this attribute allows unscrupulous players to lie about their high scores with impunity and forces honest players to be cross-examined about the validity of their claims to fame.
- **Sound and fury, whether you like it or not.** Games that don't allow you to toggle the sound effects on and off are nothing short of barbaric. Often these games have the most garish sound effects. Children drive their parents crazy with these games, and office workers playing these noisemakers are unable to fool their superiors into thinking the business application software is running.
- **Long introductions.** Some game companies feel the need to give you a lengthy light and sound show before you begin playing, but true gamers want to get down to business. Perhaps when a 48K game is loading, there is cause for pause (and some of those games pass this time with a 30-second blank screen that makes you wonder if the program crashed). For 16K games, though, spare us the hi-res copyright-infringement warning, the little guy dancing around, the missiles doing the high kick....
- **Endless preliminaries.** Nothing is more frustrating than having to play through 15 levels you've already mastered in order to get to the level of your current ability, yet virtually none of the game manufacturers has a way to circumvent this. The result is hours wasted wandering through conquered territory, eventually resulting in boredom and an early retirement for the game. For those of us who consider mastering higher levels more important than racking up raw points, jumps to higher levels should be an option at the beginning of every game.
- **Nonstandard hardware interfaces.** Some games work better with one brand of joystick, some work better with another, but almost none tell us what controller is best to use with the game. Game manufacturers can point the finger at nonstandardized controller manufacturers, but we suspect the true solution is something we've seen in a few games—the ability to configure for different joysticks or paddles at the beginning of the game. More of this, please!
- **Me-toolsm.** Another Pac-Man, another Frogger, another Defender. Companies looking for a buck take an arcade winner, modify one or two features so they won't be sued for copyright infringement and release the clone. At times this cloning can also come from the desire to get any game out on the market quickly, and the clone may wear a fancy name and package that bear little resemblance to the original game. Only when the buyer gets it home and turns it on does he realize he is the proud owner of another Pac-Man ripoff.
- **Feature overkill.** It isn't something we've seen a lot of, but game designers could go too far the other way if they aren't careful. One game we recently received allowed us to change all the playing parameters to fix the game in our favor in many different ways. Although some of the millions of possible game variations were more interesting than the "vanilla version," we were on our honor not to shatter the existing high score by, for example, taking 99 turns.

At present the crisis in games is still a lack of features, instead of too many. If buyers use their game dollars wisely at Christmas, maybe the game companies will listen up and play fair.—AG & PDQ

Letters to the Editor

Communication aid

For the people who are interested in getting a copy of the program MBOOT3.ASM (see Jay Lucas' article "Freeware: the chicken/egg dilemma with MODEM7," *InfoWorld*, November 8, 1982, page 64), an article containing the listing, along with the telephone numbers of remote C/PM systems and tips on using them, is in *Dr. Dobb's Journal*, #72, October, 1982, page 42.

Although I had known about the existence of these systems and had acquired a modem six months ago, it was this article that finally enabled me to communicate with them. I recently entered MODEM3.ASM into my system and have downloaded many interesting and valuable programs from several remote systems since then.

Andrew Omori
Burbank, CA

In defense of SuperSoft's Ada

I am writing in response to Bob Hofkin's letter to the editor in the November 22, 1982, issue of *InfoWorld*.

Mr. Hofkin appears to be missing the point of SuperSoft's development path on Ada. It is still SuperSoft's intent to place our Ada into the validation process sometime in 1983, but we also intend always to have a reasonable learning tool in our released Ada. It appears that the greatest requirement of a language learning tool is first its speed of compilation and, second, the accuracy of its information. I am glad that Mr. Hofkin noted the speed of the SuperSoft compiler. As is well known, learning tools are critical to the general acceptance of any new language.

Mr. Hofkin's statement that none of the early UCSD Pascal designers remember me is not at all surprising, considering that I have never worked on or with UCSD Pascal and never stated that I had. Perhaps he has mistaken me for another? In general, I suggest he checks his facts rather than resort to innuendo.

Michael Pagels
Manager of Software Development
SuperSoft
Champaign, IL

No more innuendo

In general we at SuperSoft have been pleased with the press coverage given to our company. Being one of the larger (and older) companies in the microcomputer software business seems to make us fair game for any and all types of criticism. However, *InfoWorld* has always, until now, not allowed innuendo and character assaults to enter into its well-known software reviews and responses. By publishing Mr. Hofkin's letter, you have hurt the reputation of a trusted employee (and friend). We think that this is a true injustice, and one that must be set straight.

First, Mike Pagels is not the type of person to lie to anyone, let alone a customer! We do not understand the UCSD Pascal project reference; we don't know how Mr. Hofkin was left with this impression. But the printing of this unverified letter has done damage to Mike Pagels' reputation. We think that Mr. Hofkin owes Mike Pagels an apology at once!

I cannot help but believe that *InfoWorld* should have checked out Mr. Hofkin's story before printing that damaging letter. You have lost the trust of everyone who knows Mike Pagels'and have set a dangerous precedent.

Second, SuperSoft's Ada is an excellent compiler that is well suited as both a learning tool and software-development tool. Our Ada is for the Z80, Telesoft's is for the 8086. No fair comparisons can be made with such different processors.

Herbert Schildt
President
SuperSoft
Champaign, IL

Amicable departure

The article in your publication's November 1 issue about MicroPro International created a false impression about my departure from that company.

Contrary to the impression left by the article, I voluntarily left full-time employment at MicroPro to pursue my own business objectives. The parting was amicable, as MicroPro will certainly confirm.

I am annoyed at the appearance of the article, since I was not interviewed prior to its publication. I trust you will correct the misleading impression left by the article in an upcoming edition.

Bruce Van Natta

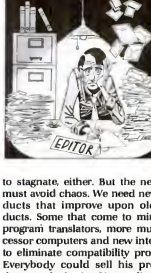
Car-computer analogy inaccurate

Regarding your editorial of November 1, 1982, bemoaning the sameness of computer products: Mr. Dvorak's analogy to the automobile industry is appropriate in only one way. Sometimes computer magazines remind me of the car-enthusiast magazines I used to read before I became discouraged by their emphasis on illegal speed, only the latest cars and $50,000-plus automobiles. I hope that your newspaper will not give itself over to praising new, expensive and exotic products exclusively.

The computer industry cannot be compared to the automobile industry with much validity. Every new car does not need a new and exclusive kind of fuel (programming language, software); it is neither expandable nor flexible as computers are; it essentially has a single purpose (transportation).

I hope that the tactics and aims of the computer industry do not emulate those of the automobile industry—planned obsolescence and pointless differences in products in the name of "style."

I don't want the computer industry



to stagnate, either. But the newness must avoid chaos. We need new products that improve upon old products. Some that come to mind are program translators, more multiprocessor computers and new interfaces to eliminate compatibility problems. Everybody could sell his product, then, on the basis of its quality of design and construction, rather than its exclusive, and copy-protected, features.

Dennis A. Church
Collinsville, IL

An unannouncement

We at Sperry Univac have read your article "Sperry Univac first to *announce* use of new CP/M" (emphasis added) in the November 1, 1982, issue of *InfoWorld*. This is erroneous; your interview with Mr. Kent Hogan was not a formal announcement by Sperry Univac of its use of CP/M Plus. We believe that your use of the term *announce* offers the misleading impressions of a formal Sperry Univac announcement.

While the statments attributed to Mr. Hogan are accurately reported, the headline and introductory paragraph inaccurately represent the interview as a product announcement by Sperry Univac. Again, the reality is that the new CP/M version is being evaluated on a beta-test-site basis and is not currently being offered in the Sperry Univac product line.

Wayne W. Adams
Director, Management and Internal Communications
Sperry Univac
Blue Bell, PA

Crime prevention requires dedication

I was very pleased to see the coverage given computer crime in your November 22, 1982, issue. A networked society will definitely have some bad apples trying to put their electronic hands in someone else's pocket.

There is an offsetting factor, however, that also deserves some attention: the use of computers as crime-deterrent devices. Police departments and security agencies now routinely exchange information about crimes and criminals using computer communications. (I wonder what would happen if the criminal broke into *that* net and cleared his own record!)

My awareness of these problems has increased since we introduced Keynote, a microcomputer-based system that is specifically not in communication with *anything*. The Keynote system manages information about locks and keys, automatically issues keys, records lock data and enforces access restrictions for any kind of lock.

Naturally, such information and authority must be maintained under tight security. Therefore, we chose to employ a free-standing, dedicated microcomputer that can be physically secured under lock and key, as well as being password-protected. It is our belief that this type of physical isolation is the only way to guarantee that Information is protected from electronic break-in.

The best way to protect high-security information is to avoid exposing it needlessly. Our research indicates that in the enthusiasm for integrated data bases, systems designers are including data that creates vulnerability and does not require the ability to relate to the rest of the data base. For this type of data, dedicated microcomputers, physically secured, seem to be ideal. Our Tactical Applications Series, of which Keynote is the first component, addresses this issue.

Kudos to John Zussman for a thought-provoking and intelligent approach to the computer-human interface. The humans are grateful.

Edmund P. O'Connell
President
Key 1 Computer Systems
Newport, RI

Ratings revised

After reading Microsoft's comments on my review of its BASCOM BASIC compiler for the TRS-80, I was prompted to reevaluate the scorebox ratings I gave the product. (The review appeared in the August 9, 1982, issue.)

Initially, I gave the product a "fair" performance rating because I felt that the most expensive TRS-80 BASIC compiler should have correspondingly superior performance. My judgment was made primarily because the efficiency of the final program depended heavily (too heavily, I thought) on how the source code was written.

In comparing BASCOM with other BASIC compilers, though, I have come to the conclusion that it is, in fact, one of the better products on the market. It is true that the product demands a certain level of competence on the part of the programmer to generate fast run-time code. This is really not an undue restriction, however, since a compiler is intended for serious users who presumably know how best to use it.

In summary, BASCOM deserves at least a "good" performance rating. It is a fine product usable in many diverse applications. It has the added benefit of being compatible with Microsoft's BASIC interpreter (which is used in the TRS-80 family of computers), as well as the ability to link with programs generated by Microsoft's FORTRAN compiler and Macro Assembler.

T.A. Daneliuk
Chicago, IL

Viewpoint

Computer dreams for everyone

By Lyla Brumbaugh

I'm working on details of the family's monthly budget when the doorbell rings; it's the mail carrier with a package. I open the box and find seven new computer programs sent by the We Got 'em All Warehouse.

The first is Design your own Windmill, written in engineering BASIC for the Southern Sun micro. This must be for Jim. Now that he has the garden room with solar collector working efficiently, he has been talking about additional energy-saving strategies.

Here is another one for Jim. The Apex Meditation: An Apex Spreadsheet. This will have to run on the big Moor system.

The printing on the envelope of Space on a Platter describes the next one as "a mammoth collection of space games for the Kansas Tools system." I wonder who ordered that. Oh well, probably all of us will play with it, and my fourth graders ought to love it.

This is the one I've been waiting for, my ticket to easier work at my desk. It has a dictionary, graphs, guest register, reports, mailing lists, letter writer, check register and everything else to help me keep up with the paperwork. Your Desk on a Disk is a new program specially designed to work on the new ABC-EmCee.

I'm sorry I looked at the next one; I'd hate to have Bobby think I was paying. It's named Tape to Disk Conversions. Apparently our high schooler is planning to change all of his tapes that run on his bedroom SOS-99 so they'll work here in the computer room on the family Do-It-All. I hope he wasn't planning to monopolize one of the hard disks. Maybe it's time he buy his own.

Here is the other program I had ordered. Grading on the Curve is another in Admiral's series of teacher-aid programs. It will probably work on the classroom Admiral, but to make it really helpful, I'll have to see if I can create a tie between that machine and my work here at home. There's a spot on the Do-it-All's dial for the Admiral configuration. It shouldn't require much more than another phone line for me.

This one is called Trends You Can Use. Hm, that must mean that Jim Junior is planning to do some work here during vacation from the Metropolitan Business Academy that will be transportable to his Strawberry at school. That means another dedicated telephone is needed. Well, he'll just have to pay for his own; the family budget simply can't pick up the tab for all those long-distance calls.

Now let's see how they work. I set the kitchen on automatic so the dinner I had planned will cook itself and sit down at the console to check out the new programs.

Since there's no one here to catch me at it, I decide to play with Space on a Platter. Making sure that the automatic telephone section of the computer is turned on, I turn the system-selection control to Kansas Tools on the dial and insert the new disk.

The iris diaphragm adjusts itself to the 5¼-inch disk size and grasps the disk so that the laser reader will be in the right position for the Kansas Tools system. I murmur my thanks to Babbage that the Do-It-All can cope with 8-bit, 16-bit and even 32-bit processor designs.

With more than an hour free, I decide to really relax while I'm playing. I activate the mechanism that creates a giant screen, pick up the remote keyboard and carry it to my contoured chair.

There, I place the manual in the reader/holder and start to load one of the space games. I lean back with the keyboard on my lap and tilt my legs up to the most comfortable position . . .

. . . and realize that I'm still sitting at my desk, dreaming of how wonderful life would be in this computer age if only we didn't have to limit ourselves to software that works on the computer we bought three years ago!

Lyla Brumbaugh is a widow, a grandmother and a retired newspaper publisher. She has no background in computers but firmly believes the whole concept is magic.

Rapid Access Marketplace

ACCESSORIES

PANAMAX
150 Mitchell Blvd
San Rafael, CA 94903 . (415) 472-5547
Solid state protection for electronic equipment, component and system reliability

COMPUTER CASE COMPANY
5650 Indian Mound Court
Columbus, OH 43213 . . (614) 868-9464
Hard attache style cases for Apple, Radio Shack, Atari, with peripherals

APPAREL/ CUSTOMIZED

WEARABLE SOFTWARE™
Dreamweaver Needleworks
P.O Box 781
Newport, RI 02840 (401) 846-3380
Custom clothing and accessories featuring your logo or message. Specially designed for microcomputer, OEM, software manufacturers, distributors, and retailers. Featuring top quality apparel w/embroidered or screen printed logos. Write f/full catalog. Low minimum.

ASSOCIATIONS

ASSOCIATION OF COMPUTER USERS (ACU)
P.O. Box 9003
Boulder, CO 80301 . . . . . . (303) 443-3600
Call or write for membership information & free copy of the ACU article "10 Pitfalls to Avoid in Selecting a Small Computer."

BOOKS

DILITHIUM PRESS
11000 S W. 11th St., #E
Beaverton, OR 97005 1-800-547-1842
Write or call for free catalog with over 90 microcomputer titles including "Sinclair ZX81-Programming for Real Application." Catalog also lists new software

COMPUTER REFERENCE GUIDE
2708 South Hill St
Los Angeles, CA 90007 . . . . (213) 748-6290
Concise, readable info on 150+ micros. Tony Webster's Microcomputer Buyer's Guide is the one book you need. IW readers-40% off $25-store price. VISA, M/C, AmEx or check $15 + $2.50 Shp (CA add $1 tax)

DATA DYNAMICS TECHNOLOGY
18704 Marquardt
Cerritos, CA 90701 . . (213) 926-9548
The largest collection of computer books ever assembled. Over 1,000 titles available. Send for our Best Seller, "The Comprehensive Computer Book Reference and Guide." Price $4 95

VALLEY SOFTWARE
P.O Box 10070
San Jose, CA 95157 . . . .
Computer Books at a discount. Most major publishers' titles and softcover & some hardcover. Send for free list. Also Big Discount on VIC-20 & Atari, peripherals & accessories.

BUSINESS GRAPHICS

The Purcell Letter on
GRAPHICS FOR MANAGEMENT
Box 06008-J
Columbus, OH 43206
The best management graphs you've ever seen. Ways to increase profit & cash flow JUMP OUT! 12 monthly letters, $36 prepaid. Sample $5.

BUSINESS TEMPLATES/ VISICALC SUPPORT

SPREADSOFT-
The Spread Sheet Support People
P.O Box 192
Clinton, MD 20735 . . (301) 856-1180
Visicalc template for business. & Business packages $175, single package $38. (postage $1 50). Our template sampler only $24 (postage $1 50). We also support VC users w/related peripherals, utilities, VC software, Ed products & pub./books, all at discount prices.

VISIBRIDGE/RPT
SOLUTIONS, INC.
P.O. Box 989
Dept. 27
Montpelier, VT 05602
VisiBridge/RPT enhances the report printing capability of VisiCalc®. Automatically segments reports too long or wide, allows for descriptive rows and columns to be repeated on each report page, creates variable width columns, does decimal point alignment and handles right, left justification and centering. $78 plus shipping & handling $4

CARTRIDGE/AUTHOR

FROBCO
P.O Box 8378
Santa Cruz, CA 95061-8378 . . (408) 429-1552
Atari™ 5200 & VCS Cartridges created using your Apple II™ plus the Frob™ is a sophisticated game development system. Package is complete w/hardware, software & users' guide. ColecoVision system available soon

COMMUNICATIONS/ NETWORKING

NEW ERA TECHNOLOGIES, INC.
2025 Eye St. NW/Ste 862
Washington, DC 20006 . . . . (800) 368-5787
MIST new CP/M networking software. Powerful, easily customized "all in one" DBMS, W-P & SMART communications. Call toll free for brochure

COMPUTER OUTPUT/ TYPESETTING

LARC COMPUTING
339 South San Antonio Rd
Los Altos, CA 94022 . (415) 941-9310
Word processing & typesetting service on HP3000 computer & COMPUGRAPHIC photo typesetter. We can provide output from files on your microcomputer; typeset; letter quality or dot matrix.

GEORGE GRAPHICS
550 2nd St.
San Francisco, CA 94107 . (415) 387-2400
(408) 292-1114
Interface typesetting and printing by Northern California's largest producer of technical publications.

COMPUTER STORES

STRAWFLOWER ELECTRONICS
50 N Cabrillo Hwy
Half Moon Bay, CA 94019 (415) 726-9128
Most Unique Radio Shack in Bay area. Extensive TRS-80 Support. Open weekends

SMITH COMPUTER SYSTEMS
215 Joliet St., Ste #1
Dyer, IN 46311 . . (219) 865-6011
IBM & APPLE related products. Tarbell, TEI, Sanyo, Altos, Memory Merchant, Godbout, Morrows, MicroPro, dBase II, CCS, MicroSoft, SciTronics and more. Services & Support.

ACC
883 Sierlin Road, Ste B110
P.O Box 747
Mountain View, CA 94042 (415) 969-4968

ACC-MICRO SYSTEMS & SERVICES
Mountain View, CA (415) 969-4969
Recording-"Buying Tips" (415) 969-4915
CompuPro, Morrow, Televideo, Epson, NEC, Texas Inst., PMMI, Sorcim, dBase II, Supervyz, etc. CP/M, & S-100/IEEE 696 specialist.

COMPUTER SUPPLIES

DAISY WHEEL RIBBON CO., INC.
8375 Archibald Ave., Suite 401
Cucamonga, CA 91730 . (714) 989-5585
Diablo Nec Qume Ribbons + Print Wheels Ribbon Reloading MX80 Anadex 9500 ++ others. Word processing and information system supplier.

BROOKE COMPUTER CORP
250 West 57th St.
New York, NY 10107 (212) 586-0923
ALL NAME BRAND Micro & Mini Computer supplies & acces. at discount prices. Diskettes/disk packs/printer ribbons/computer paper/labels/form binders/printwheels/more. Call/write for price list.

INTECHNOLOGY SUPPLIES
23 E. 20th St.
New York, NY 10003 (212) 673-6310
Free catalogs of top quality computer supplies. Stock paper, labels, disks, print wheels, ribbon & accessories. Fast delivery. Dealer inquiries invited.

COMPUTER SUPPLIES/ STOCK PAPER

DVR DISTRIBUTING
18708 Dublin Ct.
Castro Valley, CA 94546 (415) 582-1039
Stock Computer paper. Top quality. Best prices. Quotes by phone. Fast delivery SF-Bay area. Specializing in sales to small bus. Dealer Inq. invited

CONSULTING

EFFECTIVE ALTERNATIVES, INC.
175 No. Central Ave
Valley Stream, N Y 11580 . (516) 561-0566
System Analysts, programmers, sales reps (hardware/software), installation experts. Experienced on mainframes & microcomputers

MAGNUM CORPORATE PLANNING INC.
57 Main St.
Hackensack, NJ 07601 . (201) 489-9226
INFORMATION CONSULTANTS - strategic, pre-purchase, & implementation planning. Budget development. Systems designs. Feasibility studies. Seminars. Full support services

APPLE TREE ASSOCIATES, INC.
P O Box 192
Perkins, OK 74059 . . . (405) 547-5295
Specializing in • Teacher Training on Apple & TRS-80 microcomputer • School district consulting • Software/Hardware evaluation

CONSULTING/BUSINESS

DAVID M. CHERED, PhD
4005 Locust Ave
Long Beach, CA 90807 (213) 399-3077
Specializing in practical business strategy and forecasting

DIABLO RIBBONS

BUSINESS SUPPORT SERVICES, INC.
705 Butternut Ave.
Royal Oak, MI 48073 (313) 585-4736
Genuine Diablo Universal Multi-strike ribbons. Yield 360,000 characters! 10 Day Free Trial Offer $75/12 or $39/5. $2 shipping. Send/Call orders. Diablo printwheels available

DISCOUNT EQUIPMENT

PERSONAL COMPUTER EQUIPMENT CORP
P O Box 34883
Bethesda, MD 20817 (301) 279-7755
24 hr serv Brochure info. (800) 227-2634 ext 994
Now serving Washington DC and the USA. Discount prices, Altos, Atari, NEC, NORTHStar, TeleVideo, AOOS, Epson, Ansdax, Okidata & . CP/M software, cables, diskettes & other accessories, etc

DISCOUNT SOFTWARE

SOFTWARE, ETC.
1815 College Parkway
Ft Myers, FL 33907 . . . (813) 936-1152
IBM, CP/M and Apple software for sale lowest prices around! Also selling a limited line of related hardware & accessories. Send for free catalog.

DISKETTE COPY SERVICE

ALLENBACH INDUSTRIES
2101 Las Palmas, Ste A
Carlsbad, CA 92008 . . Toll Free (800) 854-1515
CA Collect (714) 438-2258
Telex 19-4561LSA
Your full-service source for virtually every system and format using the most sophisticated, reliable equipment available/Serialization, copy protection (encryption), conversion and packaging is available. Double boot for Apple and TRS. Supplied on OEM quality Allenbach diskettes with lifetime guarantee, (or customer supplied diskettes). Masters may be combined for quantity pricing. Rapid delivery for 100 to 100,000+ copies

ALF PRODUCTS
1315 F Nelson
Denver, CO 80215 (303) 234-0871
APPLE, ATARI, TRS-80 & other 5¼" formats. Fast, reliable & low cost, of course. Several brands of disks sold in bulk (blank or copy). Too many services to list here. Call or write f/free brochure

DISCOPY LABS
The Plaza Building
1150 Chestnut Lane
Menlo Park, CA 94025 . (415) 326-5415
Fast, reliable, low-cost duplication service. Serialization/copy protection avail./down loading, 100-10K + Qty OEM disc. Scotch brand diskettes from 3M Co. IBM/Apple/TRS-80/Osborne/Atari/Zenith/Commodore/HP/NorthStar/Xerox. Call for other formats

OMNI RESOURCES CORPORATION
4 Oak Pond Ave
Millbury, MA 01527 . . . . (617) 799-0187
(800) 343-7620
Duplication and formatting done by state of the art high speed duplication equipment for the IBM, Apple, Atari, TRS-80 Model I, II & III, Osborne, Commodore, Zenith and many more. Copy protection and serialization schemes are available. Your programs are duplicated on Critically Certified disks that exceed ANSI specifications. Also private labeling and packaging are available. Fast turnaround guaranteed

DISKETTE FORMAT CONVERSION

SYNERGY BUSINESS SYSTEMS, INC.
6640 Powers Ferry Rd
Atlanta, GA 30339 (404) 952-6514
Computer Access No. 404/952-7512
We convert your 8" CP/M diskette to Vector Graphic 5¼" diskette or via modem to either format. Volume discounts available. Call for details

DOCUMENTATION

softINDUSTRIES
Box 169
Woodbury, CT 06798 (203) 263-0292
Quality user manuals sell software. We work with you not just for you. Send for complete details and a free documentation check list.

NEXUS RESEARCH
P.O. Box 642
Denton, TX 75202 (817) 382-5602
Never give a competitor an even break. You use professionals to code, you need professionals to document. We take over your copy at any stage: writing, editing, revising, proofreading. O/FW area

DUST COVERS

COMPUCOVER
P O. Box 324
Mary Esther, FL 32569 1-800-874-6391
CompuCover Dust Covers made of a cloth back anti-static vinyl. Custom fitted for longer life and reliability. Over 300 designs from ADes thru Xymec. P.O Box 324, Mary Esther, FL 32569. Phone #1 (800) 874-6391

EPSON RIBBONS

C & D RESEARCH
P.O Box 40027
San Francisco, CA 94140 Source STCD535
(415) 431-5557
MX80 refills as low as $3.70 ea., cartridges $7 52 ea. MX100 refills as low as $4 81 ea. cartridges $11 50 ea. 8 or more shipped prepaid. Call or send f/more information. 24 hr phones. Also fits IBM 5152 & HP 82905 printers.

EXECUTIVE SEARCH FIRMS

THE INFOSYSTEMS GROUP
414 W Goethe/Ste 103
Chicago, IL 60610 . . (312) 787-8220
Senior executives-micro hardware & software-robotics-artifical intelligence-CAD/CAM-telecommunications-applications. Nationwide.

FORTH

APPLIED ANALYTICS, INC.
8910 Brookridge Dr.
Upper Marlboro, MD 20772 (301) 627-6650
microSPEED-the ULTIMATE FORTH for the Apple. Over 500 words, hardware floating point. Up to 100 times faster than Applesoft. 160-page manual $15.

MICROMOTION
12077 Wilshire Blvd., #506
Los Angeles, CA 90025 . . . . (213) 821-4340
FORTH-79 for Apple II/II+, Z-80 CP/M, NorthStar DOS users. Meets all provisions of the Standard. Includes 200 p. tutorial, screen editor, macro assembler, strings & 32 bits integer arithmetic. Floating pt. & HIRES also avail (HIRES for Apple & NorthStar Advantage only) $89 95-$139 95 complete.

FURNITURE FOR COMPUTERS

C.F & A.: COMPUTER FURNITURE
AND ACCESSORIES
515 W 132nd St.
Gardena, CA 90248 (213) 327-7710
Terminal stands, mini & microcomputer enclosures, printer stands, turntables. Apple II desks and accessories. Delivery from stock

TOOR FURNITURE CORP
4835 McConnell Ave
Los Angeles, CA 90066 (213) 821-1255
State-of-the-art hardwood custom fit computer workstations and accessories. Ships knock-down national & international. Dealers & other ISO's inquiries invited

GAME DESIGNER

FROBCO, a Div. of Tri-Comp Polytechnical, Inc.
P O Box 2780
Santa Cruz, CA 95063 (408) 429-5138
Convert your Apple®II into a sophisticated game development system. Create Atari™ VCS cartridges. User's Guide included

GRAPHICS HARDWARE

GIBSON LABORATORIES, INC.
23192-D Verdugo Dr
Laguna Hills, CA 92653 (714) 770-3088
APPLE HI-RESOLUTIONS GRAPHICS LIGHT PEN True Light Pen with 60-Hz Pos'n Readout! CAD/CAM/Drafting/Design/Business/Games Education/Art/Logic Design/Interaction. INCLUDES Application Software, Drivers and DOC. Easy Install. AVAILABLE NOW!!!

HARDWARE MANUFACTURING

SYSTEMS GROUP CO.
Subsidiary of Measurement Systems & Controls
1601 Orangewood Ave.
Orange, CA 92668 .... (714) 633-4460
Complete S-100 systems & board level products for single & multiuser systems w/hard disk & tape

PARA DYNAMICS CORP.
7895 E. Acoma Drive
Scottsdale, AZ 85260 (602) 991-1600
S-100 Bus Micro-Computer Main-Frames 8" Disk Drive Cabinets, Integrated 5¼" & 8" Main-Frame/Disk Drive facilities

HARDWARE/SOFTWARE FOR APPLE

STELLATION TWO
Lobero Bldg.
P.O. Box 2342
Santa Barbara, CA 93120 ... (805) 966-1140
Significant speed increase for Apple II, II+ applications under Apple Pascal, Apple Graphics, 48K Run-Time Environment & Fortran. Increases to 150% can make the II run faster than the III. Easy run hardware/software combo includes THE MILL 6809 Co-processor. New low prices. OEM/Dealer & indiv. inquiries welcomed.

INSURANCE

SAFEWARE ....The Computer Insurance
Columbia National General Agency
66 East Broad St.
Columbus, OH 43215 ...... (800) 848-0598
In Ohio (614) 224-7235
Is your personal computer excluded by home owners policies because it has business uses? Call SAFEWARE. Specialists in computers and the computer industry

INVENTORY CONTROL

NATIONAL COMPUTER WORKS INC.
347 Culver Blvd.
Playa del Rey, CA 90291 ... (213) 823-5747
BAR CODE SPECIALISTS. We build & sell Bar Code systems for all applications. Liquor stores, shoe stores, small markets, Fed. Govern. vendors, etc. Full systems for less than $2000.

MAIL LISTS

IRV BRECHNER ENTERPRISES
P.O. Box 453
Livingston, NJ 07039 ... (201) 731-4382
Leader in microcomputer owners mailing lists. Over 250,000 names, available by machine brand. Stores & clubs also. Additional promotions for computer marketers. Write or call for catalog

MAIL ORDER

THE CPU SHOP
420-438 Rutherford Ave.
Charlestown, MA 02129 ...... (617) 242-3361
Microcomputer hardware & software for business and personal applications. Low prices. Prompt delivery. Send for free catalog.

MEDICAL

PROFESSIONAL SYSTEMS CORPORATION
3858 Carson, Suite 220
Torrance, CA 90503 .... (213) 316-5346
The Physicians Office Computer. The only system with a track record. Automatically produces insurance forms, statements, day sheets, deposit slips, ledgers & much more. Call or write for brochure, your local dealer or users list CP/M.

MICROCOMPUTER GUIDELINES

PC CONSULTANTS
P.O. Box 52
Richton Park, IL 60471
Customize our comprehensive microcomputer guidelines for your users, customers or yourself. 8 chapters cover issues from Hardware/Software selection aids to audit policies & procedures. DP shops, save men hrs. $9.50.

POWER PROTECTION

CUESTA SYSTEMS, INC.
3440 Roberto Ct.
San Luis Obispo CA 93401 ... (805) 541-4160
DATASAVER™ power backup unit in 60 & 200 watt capacities provide uninterrupted AC power. Transient overvoltage protection incorp. in DATASAVER available separately in the Voltage Surge & Transient Suppressor

PRINTERS

THE PRINTER WORKS
2260 American Ave
Hayward, CA 94545 . (415) 887-6116
Diablo Daisywheel Printers, like new Model 630 $1395, 1650 RO $1495. Bi-directional forms tractor $135. Spare parts and service available

PROFESSIONAL BILLING SYSTEMS

BILLMASTER™
by ADVANCED SOLUTIONS, INC.
Two Oakmead Terrace, Suite 210
Sunnyvale, CA 94086 ... (408) 730-4666
Lawyers, doctors ... simple, easy to use billing systems. Balance forward accounts for accurate statements. CP/M, MPM compatible 48K or 64K, up to 500 clients. Priced $385. Dealer inquiries welcomed

PUBLICATIONS

MAYER ASSOCIATES INTERNATIONAL
6009 Walnut St.
Pittsburgh, PA 15206 ..... (412) 362-1290
Source #STO610
New. Short introduction to the IBM Personal Computer for the complete novice. Easy step-by-step, "how to" for every IBM/PC buyer or perspective buyer. Ideal f/secretary, spouse, friend. Immediate delivery. Price 11.95+ $2 s/h.

PUBLICATIONS/ GAMES

COMPUTER GAMING WORLD
1919 E. Sycamore #203
Anaheim, CA 92805 .... (714) 776-4979
A bi-mo. mag. covering the computer gaming hobby. Dealing w/games & h'ware for the Apple/Atari/TRS-80/etc. CGW reviews & analysis games, provides strategy tips, and industry news, contests, & other pertinent info. 1 yr sub. $11 (US), $15 (CAN), $18 (Foreign surface), $26 (Foreign Air). Dlr inq. invited.

PUBLICATIONS/ NEWSLETTERS

PERIODICAL GUIDE for COMPUTERISTS
P.O. Box 288-I
Applegate, OR 97530 .... (503) 846-6742
INDEXES: articles from 20+ computer magazines beginning 1975-76 to 1979. $5.00 *each. 1980-81 Index, $11.95 postpaid.*

PC: THE INDEPENDENT GUIDE TO IBM PERSONAL COMPUTERS
Software Communications, Inc.
1528 Irving St.
San Francisco, CA 94122 .. (415) 753-8088
IBM Personal Computer users will find objective product reviews, applications information and user reports in PC magazine. To subscribe, send $14.50 for six (6) issues or $27 for twelve (12) issues.

80-U.S. JOURNAL
3838 South Warner St.
Tacoma, WA 98409 .... (206) 475-2219
TRS-80 USERS JOURNAL, a monthly magazine that supports the entire line of Tandy Computers. Programs, listings, hardware & software reviews, news & new product announcements. Only $16/1 yr. Can. & Mex. $25.00, Int. $72

Os/TECH
P.O. Box 517
Clearwater, FL 33617 .... (813) 446-7239
A HOW-TO, WHAT-TO, WHERE-TO newsletter for the beginner & experienced owners of the Osborne I computer. A reference guide for today & tomorrow. Sample $1.50, 6 issues per yr. $9.00 International extra.

ADTRAK, INC
1901 Old Middlefield Way
Mountain View, CA 94043 (415) 965-7473
Analysis of ad space, expenditures and market share in over 30 computer publications. Used by ad managers, publishers, space reps, media buyers. Call for complimentary newsletter

LAW & TECHNOLOGY PRESS
P.O. Box 4658
Terminal Annex
Los Angeles, CA 90051 ..... (213) 748-9416
SOFTWARE PROTECTION is the only publication written for both lawyers & non-lawyers focusing solely on legal & technical aspects of protecting computer software. $48 for 6 issues. International $60. Sample copies $5.00.

RIBBONS/COMPUTER & WORD PROCESSING

ASPEN RIBBONS, INC.
1700 N. 55th St.
Boulder, CO 80301 ...... (303) 444-4054
(800) 525-0646
Telex 45-0055
Manufacturers of ribbons for computers & word processors of all types. World's largest recycler of ribbons. Custom design of ribbons. Custom design of ribbons for OEM's. Color ribbons. FREE CATALOG

RUTISHAUSER SHEET-FEEDERS

ON TARGET PRODUCTS
32 Cherry Lane
Floral Park, NY 11001 ..... (800) 645-3443
(516) 437-1221
(212) 343-0838
Rutishauser sheet-feeders and forms tractors for Diablo, Qume, Ricoh, Wang, Tec/C-Itoh F10 and many others. Dealer inquiries invited

SALES LEADS

COMPUTER INTELLIGENCE
3344 N. Torrey Pines Ct., Ste. 210
La Jolla, CA 92037 .... (714) 450-1667
(800) 854-2010
Monthly detail on recent buyers of computers-(micros to main frames) copiers, Wp, electronic typewriters. New names monthly + over 100,000 sites on files.

COMPUTRACK, INC.
43225 Whittier Ave
Hemet, CA 92343 .... (714) 927-5193
25,000+ names of microcomputer owners nationwide. Printed list or labels. Complete file, area breakout by zip or nth name. Money back guarantee on deliverability.

68000 HARD/SOFTWARE DEVELOPMENT SERV.

RHYTON SOFTWARE, INC.
P.O. Box 11105
San Francisco, CA 94101 ... (415) 330-7449
Have large EXORmacs 68000 develop. system. We write operating systems, applications & translate source. From Z-80, 6800 & 6502 to 68K Drivers, porting, hrdw. Hourly or bid.

SOFTWARE/

BRADLAND SOFTWARE, LTD.
P.O. Box 3999
Evergreen, CO 80439 .. .... (303) 670-1010
Toll free (800) 582-4488
Fully supported by our TOLL FREE SOFTLINE. WordStar™, InfoStar™, DataStar™ by MicroPro™ & G/L, CPA, A/R, A/P, inventory, sales invoicing, payroll, job costing, fixed asset management. By PeachTree™. Softline newsletter. Call for brochure

SOFTWARE/ ACCOUNTING

MIDWEST MICRO SYSTEM
P.O. Box 271-Dept. S
Spencer, IN 47460
Totally integrated CP/M acctg system. Runs on most all micros. IBM/PC, TRS-80 II. Contains G/L, A/R, A/P, payroll, inventory, mail list. Total price $799. $75 demo manual-refunded upon ordering pkg. Dealer inquiries welcome. End-users supported via 800-457-4407. (In Ind 800-742-4707)

CHUCK ATKINSON PROGRAMS
Rt. 6, Box 277-C
Benbrook, TX 76126 ...... (817) 249-0166
Money Management Series. Bookkeeping for individual or business. CP/M (CB80). Guide $3.95. Disk prices start at $29.95.

SOFTWARE/ ACCOUNTANTS

ACCOUNTANTS MICROSYSTEMS INC. (AMI)
1404 140th Pl. N.E.
Bellevue, WA 98007 ..... (206) 643-2050
Toll Free 1-800-426-8201
Sophisticated General Ledger Financial Reporting software for practicing accountants and large corporations. CP/M, MS/DOS, XENIX compatible

SOFTWARE/ AGRICULTURE

COUNTRYSIDE DATA, INC.
718 North Skyline, Suite 201
Idaho Falls, Idaho 83402 .... (208) 529-6676
Available for most micros (UCSD Pascal™ & CP/M™) records for accounting with budget, dairy herd program. Detail list. Dealer inquiries invited. UCSD-Pascal, trademark, Regents of U. of CA. CP/M trademark of Digital Research, Inc

RED WING BUSINESS SYSTEMS, INC.
610 Main St.
Red Wing, MN 55066 ... (612) 388-1106
WORKING RECORDS™ ... Software for true farm financial management, financial packages that meet your needs in the area of G/L, A/P, A/R, Inventory, assets management, tax planning, etc. Designed by professionals in both farming & data processing. Available for TRS-80, Apple, and IBM P.C.

GRIFFITH DATA SERVICES
5410 Prospect
Peoria, IL 61614 .... (309) 688-1055
FACS, Farm Accounting Control System. Full, single-entry, cash-base accounting for Apple. Customize FACS to your operation. Menu-driven, friendly & flexible. Dealer inquiries invited. Get the facts on FACS.

FBS SYSTEMS, INC.
P.O. Box 201
Aledo, IL 61231 .... (309) 582-5628
SECRETARY OF AGRICULTURE™ integrated financial, crop and livestock records. TRS-80, Apple, CP/M. Free "Friendly Farm Computer Newsletter." Dealer inq. invited.

AGRICULTURAL SOFTWARE CONSULTANTS
1709 Santa Fe
Kingsville, TX 78363 ...... (512) 595-1937
CP/M & TRS-80. MIXIT-2, universal least-cost ration program. Stores hundreds of ingredients with 67 nutrients, $395, demo disk & manual $10. MINIMAX, solves 50 by 50 and other linear programming problems, $200.

AG DATA SYSTEMS™
891 Hazel St.
Gridley, CA 95948 .... (916) 846-6203
Over 14 yrs. of computer service for agriculture. Full dbl entry, G/L, P/R & cost acctg. Costing can be by field and/or crop & by equipment number. Auditing details are maintained f/full yr. reports & f/computer analysis. Land leveling, grower-packer, farm mgmt co., huller & other programs also available. Dealer inquiries welcome

HOMESTEAD FARM MANAGEMENT SYSTEM
P.O. Box 708
Delta, CO 81416 .... (303) 835-8293
A fully integrated agriculturally designed double entry acctg system tied directly to inventory, fixed assets, cash flow & labor modules. Combined record keeping & simulation modules f/feed lot, cow/calf, hogs & crops also tied to acctg module for system integration not found in other ag pkgs. CP/M, CP/M-86, MS, DOS. See us at CP/M 83-Booth #227.

SOFTWARE/ AGRICULTURAL/ BUSINESS

DECISIONDATA & SERVICES INC.
116 Kellog Ave.
Ames, IA 50010 .... (515) 233-4573
Agricultural & banking software for the Apple. Farm management programs: Beef Feedlot, Least Cost Feeds, Commodity Chart Master, Crop Manager, Buy vs. Lease, Depreciation, Farm Decision Aids. Banking programs incl. Trust Accounts, Loan Profitability, IRA projections. Dealer inq. invited

SOFTWARE/ BUSINESS

INSOFT
10175 S.W. Barbur Blvd.
Suite 202B
Portland, OR 97219 .... (503) 244-4181
Insoft Accountant. General Ledger. Accounts Receivable, Accounts Payable and Payroll.

T.C.S. SOFTWARE
3209 Fondren
Houston, TX 77063 .... (713) 977-7505
Now Shipping: CLIENT LEDGER SYSTEM and TOTAL ACCOUNTING SYSTEM (Demo disks available) Write or call for more information.

TARANTO & ASSOC., INC.
121 Paul Dr.
San Rafael, CA 94903 ... ... (415) 472-2670
800/227-2868
Completely integrated accounting system for the TRS-80 & CP/M based SYSTEMS.

MICROCOMPUTER CONSULTANTS
P.O. Box T
Davis, CA 95617 ..... (916) 756-8104
800/824-5952
(Outside California)
A broad line of accounting packages designed for the first time user. Runs on CP/M™ or MP/M. Written in PL-I-80. Demo disks available.

PERICOMP CORPORATION
7 Erie Dr.
Natick, MA 01760 ... . (617) 655-2460
State of the art business software. Total accounting capabilities operating under CP/M for Z80 systems. Includes A/R, A/P, journals, G/L, & inventory. Clear, concise manuals. Demo disk avail

SOFTWARE DIMENSIONS
6371 Auburn Blvd.
Citrus Heights, CA 95610 .. (916) 722-8000
Specialist in general purpose small business accounting systems. Developers of ACCOUNTING PLUS, ACCOUNTING PLUS II, and CPA PARTNERS.

SYTEK
1714 Solano Ave
Berkeley, CA 94707 .... (415) 527-1167
COGEN, RM/COBOL program generator, for business applications. Start reducing your software backlog today w/this proven productivity package. Write or call for information kit.

ITM SOFTWARE DIVISION
936 Dewing Ave. Ste. E
Lafayette, CA 94549 ..... (800) 334-3404
1/3 OFF all software in 1983! Over 2,000 programs to choose from, all formats available. Software selection service, financing, 30-day risk free demonstration period. Call ITM.

Rapid Access Marketplace

SOFTWARE/COLLEGE FINANCIAL AID

SOFTWARE CREATIONS
10720 S. Hoover
Los Angeles, CA 90044 . (213) 754-4431
New software packages. NDSL BILLING, STUDENT PAYROLL, FUND ACCOUNTING, NEED ANALYSIS, LOAN/TUITION AMORTIZATION ACCOUNTS RECEIVABLE available 1/83.

SOFTWARE/ CONSTRUCTION

CONSTRUCTION DATA CONTROL, INC.
2000 Weems Rd.
Tucker, GA 30084 . . . . (404) 934-4722
Accounting, Estimating, Job Cost, Variable Rate/Cert. Payroll-Dealers Inquiries Invited.

SOFTWARE/ COMMUNICATIONS

WINTERHALTER & ASSOCIATES, INC.
313 North First St.
Ann Arbor, MI 48103 . . . . . . (313) 662-2002
Communication Software to Interface micros into mainframe computers, written "C". IBM 3780, IBM 2780, IBM 2770, IBM 3741, IBM 3278, and IBM 3278 available. X.25 and SDLC/SNA is in development and available to OEM and manufacturers

SOFTWARE/ DATA BASE

ASHTON-TATE
9929 W. Jefferson Blvd.
Culver City, CA 90230 . . . . . (213) 204-5570
d-BASE II is a user friendly relational data base management system, includes ZIP, a screen builder, and report generator Package includes systems disk, demo disk, 350 page manual, 30 day money back guarentee, post sale support provided by dealers

SOFTWARE/ DEVELOPMENT/ DATA BASE

CONDOR COMPUTER CORPORATION
2051 So. State
Ann Arbor, MI 48104 . . . . . . (313) 769-3988
CONDOR series 20, a complete application development system utilizing a relational data base. Designed for 1st time or experienced user. Excellent deve processing, report writing & facilities operation $295 $595 $995

SOFTWARE/ EDUCATION

ENTELEK, DEPT. IW
P.O. Box 1303
Portsmouth, NH 03801 . . . . . (603) 436-0438
FREE CATALOGUE . lists over 100 books and microcomputer programs of special interest to educators

SOFTWARE/ EDUCATIONAL DIRECTORY

STERLING SOFTWARE
STERLING SWIFT PUBLISHING COMPANY
1600 Fortview Road, #I
Austin, TX 78704 . . . . . . Hotline (512) 444-7570
SWIFT'S 1982 DIRECTORY, APPLE II ED. Software, courseware, texts. Apple-based elem. math, managed or unmanaged. Ask for catalog

SOFTWARE/ ENGINEERING

ELITE SOFTWARE, INC.
421 Hwy 30 Suite 121
College Station, TX 77840 . (713) 696-3328
Mch & Elec. design software for CP/M based computers. HVAC, En Analysis, Duct Sizing Piping, Lighting, Short Circuit & more. Demo disk avail H'ware & S'ware packages avail w/ purchase at our cost

DISCO-TECH
Morton Technologies, Inc
600 S St./P.O. Box 1659
Santa Rosa, CA 95402 . . . . (707) 523-1600
Land surveying, engineering, architecture, energy software. CP/M, MS-DOS, TRS-80/I & III. Reliable, field-tested, comprehensive user-friendly, well-documented Call or write for free lit. Dealer inquiries invited

SOFTWARE FOR OSBORNE

OZZYWARE, INC.
P.O. Box 290530
Tampa, FL 33687
OzzyWare Software features 3 utility pkge. and Osborne general ledger configures for OS1. Each pkg includes at least 8 utilities & excellent documentation. Disk cataloging system, portable computer library, disk, disk editor + others.

SOFTWARE/GRAPHICS

CS2 DATA BASE INTERNATIONAL
P.O Box 25404
Houston, TX 77265 . . . . (713) 521-3150
*PLOT-TX, Graphics CRT terminal control software, a FORTRAN sub-routine library for Tektronix PLOT 10 hardware compatible CRT's $395 00. Specify disk format; check, money order or C.O.D.'s. Complete Graphics systems also

SOFTWARE/ IBM GAMES

APLOGICA, INC.
P O Box 536
New York, NY 10014 Toll Free (800) 547-5995
LASER ZAP ARCADE SPACE GAME. Zap the Aliens as they sweep across the void. Realistic machine language action & sound. High score log. Color or monochrome monitor. Requires IBM PC, 64K, DOS, Disk Drive Satisfaction guaranteed Order toll free MC/Visa/AmEX or MO $35 + $2 s/h. NY res add sales tax

SOFTWARE/ IBM PC

NETWORK CONSULTING INC.
A 106-1093 West Broadway
Vancouver, B.C. Canada V8H1E2
Phone is (604) 738-3500
UCSD PASCAL™ available now for the IBM Personal Computer. Harddisk support, RAMdisk, 25% more floppy storage, double side/double tracking fast stepping floppy support, extended memory. Call now

PERSONAL COMPUTER SOFTWARE SPECIALISTS
8531 Crown Blvd. Ste 3A
San Jose, CA 95120 . . . . (408) 997-5033
We are a retail dealer of Software with a line devoted exclusively to the IBM PC. Before you buy your next program product, call or write for a current catalog of aggressively priced available software.

PROFESSIONAL SOFTWARE ASSOCIATES
P O. Box 41277
Minneapolis, MN . (612) 829-7889
(612) 559-1856
Increased IBM basic power & utility with PSA Basic Utilities. Basic Packer $49.95/Basic Cross-Ref $34.00/Basic Lister $39.95/Combo package (all three) $99 95. The best basic utilities available. Write or call NOW!!

TALL TREE SYSTEMS
1036 Los Altos Ave
Los Altos, CA 94022 . . . (415) 941-5500
JFORMAT diskette $60 Features: Electronic Disk, Print Spooling and Ten Sector Formats PC DOS 1.10 Support for Hard Disks, 8" Floppies and Quad Drives (TM100-4). OEM systems available.

DAVIDSON & ASSOCIATES
6069 Groveoak Place 814
Rancho Palos Verdes, CA 90274
(213) 378-7826
The SPEEDREADER increases reading speed & improves comprehension. 2 diskettes containing 5 reading programs & 34 reading selections. Satisfaction/Money-back guarentee

PC SOFTWARE, INC.
P.O Box 211
211 East Dakota Ave
Spring Valley, IL 61362 1-800-334-0654
Ext 102
LARGEST SELECTION---BEST PRICES!!
Our entire product line is devoted to the IBM + PC, we are the specialists. Save Money! Call our 24 hour-toll free number-we'll send you information today.

DB/DC SOFTWARE ASSOCIATES
P O. Box 4695
Manchester, NH 03108 . (617) 682-6629
Use our widely acclaimed menu systems to make your IBM PC simple & User friendly. ULTIMENU for DOS $24.85 ULTIMENU for BASIC $16.95. Write for details about these and other exciting PC products

WASHINGTON COMPUTER SERVICES
3028 Silvern Lane
Bellingham, WA 98226 . (206) 734-8248
RECORD MANAGEMENT SYSTEM. ASM-Lang DBMS features random access, report writing, sorting, user defined record format, screen oriented data entry/update, file reorganization, file also accessible from BASIC.

SOFTWARE/ IBM PC/ DATABASE

NORTH AMERICAN BUSINESS SYSTEMS
677 Craig
St. Louis, MO 63141 . . . (800) IBM-DEMO
FREE DISKETTE to all IBM PC owners, ANSWER™, the world's first self teaching data base Call 800-426-3366 for your FREE VIP kit containing a 1 hr. presentation of the ANSWER™ on high quality diskette See InfoWorld article/ Aug. 23, 1982, pg 17.

SOFTWARE/ IBM PC/SORT

INFO-PRO'S INC.
2102 Business Center Drive
Suite 132
Irvine, CA 92715 . . . . (714) 851-8075
Info-SORT; fastest SORT/SELECT program available in the IBM PC market Designed to run as a stand alone DOS utility or interface with existing applications programs Price $95. Demo $25

SOFTWARE/LANGUAGE SYS. & DEVEL.

COMPUTER INNOVATION, INC.
75 Pine St.
Lincroft, NJ 07738 . . . . . (201) 530-0995
C COMPILER FOR CP/M-86. Standard V7 syntax and library. Generates fast and efficient in-line machine code

SYSCON CORPORATION
4018 Hancock St.
San Diego, CA 92110 . . . (714) 292-PLMX
PLMX compiler (PL/M-80 compatible), 8080/8085, 6800/6802, 6809, Z-80,9900, 1802 code CP/M, DOS/50, TEKDOS. CP/M cross-assemblers for 6600 and 1802.

MANX SOFTWARE SYSTEMS
P.O. Box 55
Shrewsbury, NJ 07701 . . . . . . (201) 530-7997
C Compiler for CP/M, Apple Dos, CP/M-86, IBM PC. Unix V-7 compatible Fast, compilation & execution. Standard pkg includes assembler, relocating linker, manual, library maintenance & other utilities CP/M & Apple Dos $108; IBM PC $249; CPM-86 $249.

SOFTWARE/ LICENSING

THE SOFTWARE GUILD
24213 Clawiter Rd. Dept. 1
Hayward, CA 94545 . . . . . . (415) 887-6699
Authors' & publishers' representatives. Qualified programs receive distribution and marketing expertise including packaging, customer service & piracy protection.

SOFTWARE/ GENERAL

STRUCTURED SYSTEMS GROUP
5204 Claremont Ave.
Oakland, CA 94618 . (415) 547-1567
Accounting, data base, mass mailing, software development tools and support.

SOUTHWESTERN DATA SYSTEMS
P O Box 582
Santee, CA 92071 . . . . . (714) 562-3221
Free catalog detailing our quality business, communication and utility software for the APPLE II. Dealer inquiries invited.

SOFTWARE/ PHONE UTILITY

CHRISTOPHER SYSTEMS CORPORATION
2775 Glendower Ave
Los Angeles, CA 90027 . . (213) 664-4880
ADDRESS/DIALER for Apple II. Quick access to addresses, phone #'s, dates, etc. Auto-dial & redial busy #'s Reminds you of appointments, birthdays, much more, for business & home.

SOFTWARE/TRAINING & SUPPORT

BRADLAND SOFTWARE, LTD.
P.O. Box 3999
Evergreen, CO 80439 . (303) 670-1010
Toll Free (800) 682-4488
PeachTree™ & MicroPro™ software fully supported by TOLL FREE SOFTLINE, correspondence instruction or Hands-On-Training G/L, A/R, A/P, inventory, job costing, time billing, word processing, calc spread sheets, etc Call / brochure.

SOFTWARE/ PUBLISHER

DIGITAL MARKETING CORPORATION
2670 Cherry Lane
Walnut Creek, CA 94596 . . . (415) 938-2880
SOFTWARE AUTHORS: contact us regarding our marketing services We publish, distribute & support a complete line of application software. See our ad on page 2 or 3.

XENVIRONS SYSTEMS RESEARCH
Postal Drawer 222
Salford, PA 18957 . (215) 287-8622
Software authors contact us regarding our marketing services. We publish, distribute & support a complete line of 68,000 applications software

SOFTWARE/ REAL ESTATE

AMERICAN SOFTWARE CORPORATION
167 E. Blithedale Ave.
Mill Valley, CA 94942 . . . (415) 381-1600
Attn: Scott Wilmore
Most complete line of software for Micros. Property Management, Financial Analysis, Development packages Runs on all CP/M, MP/M operating systems. Call us for details now!.

SOFTWARE/ SCIENTIFIC TECHNICAL

NORTHWEST ANALYTICAL, INC.
1532 Southwest Morrison St.
Portland, OR 97205 . . . . (503) 224-7727
Laboratory & process control systems, technical software, statistics, forecasting, instrument monitoring, data management & analysis

MICROSTAT SOFTWARE
P.O. Box 681 Dept I
Fairfield, IA 52556
Apple micro computer statistics package. A behavioral sciences oriented package for research and evaluation. Complete data file mgm't for files of up to 3,000 items. $85

SOFTWARE/ STORES

THE PROGRAM STORE
4200 Wisconsin Ave., N W.
Washington, DC 20016 . . . . . . (800) 424-2738
Atari, TRS-80, Apple, Vic-20, IBM software. Stores in Baltimore, Washington and Columbus, OH. Franchise opportunities available

THE SOFTWARE-X-CHANGE
12032 Wilshire Blvd.
Los Angeles, CA 90025 . . . (213) 820-2439
WHERE SOFTWARE IS #!! Use our services to locate and/or evaluate the specialized CP/M applications you've been searching for Send $4.95 (includes shipping) for our CP/M Software Directory-which contains over 500 software products.

SOFTWARE/ TEKTRONIX 4050 Series

LEONARD G. SARTON
COMPUTER GRAPHICS
P O. Box 2147 . . . . . . (Establ. 1878)
Walnut Creek, CA 94595 . . . . (415) 939-5889
Word Processing, General Ledger, Schematic & Mechanical Drafting Surveyor's Traverse & Mapping, Graphic Subdivision Design, Gantt Charting w/Cash Flow. Satisfaction Guaranteed

SOFTWARE/ TIMEX SINCLAIR

BIOCAL SOFTWARE
340 Cypress Dr
Fairfax, CA 94930
The Stock Market, Checkbook, Star Trek, Checkers, Datebook, Card File. $10 each on cassette Send SASE for catalog.

SOFTWARE/ WORD PROCESSING

FANCY FONT™ -A Personal Typesetter
SoftCraft
8726 So. Sepulveda Blvd 81941
Los Angeles, CA 90045 . . (213) 641-3822
The Fancy Font™ System achieves very hi-quality print on the EPSON Printers Font sets are provided in sizes from 8 to 40 pts. & styles including. Roman, Sans-Serif, Script & Olde English Special characters & logos can be created by the user $180 CP/M- 95 page manual Free brochure.

SPEECH SYNTHESIZERS

DON'T ASK
2265 Westwood Blvd. Ste. B-150
Los Angeles, CA 90064 . (213) 387-8811
S A.M., the all software low price, high quality speech synthesizer on a disk Available for Apple II & Atari home computers Call or write for more information.

STREET ELECTRONICS
1140 Mark Ave
Carpinteria, CA 93013 . . . . . . (805) 684-4593
Unlimited vocabulary text-to-speech synthesizers. ECHO II for Apple II, ECHO General Purpose for other micros & new OEM product.

TRAINING

AMERICAN TRAINING INCORPORATED
3800 Highland Ave., Suite 300
Manhattan Beach, CA 90266 (213) 546-5578
(213) 546-4725
CP/M, IBM PC DOS, WORDSTAR, dBase, VisiCalc, SuperCalc...self teaching interactive training Manufacturers reps wanted

MERCER SYSTEMS, INC.
87 Scooter Lane
Hicksville, NY 11801 . . . . (516) 796-9392
Instructor based training seminars for all data processing disciplines In-house and public courses.

USED COMPUTERS

COMPUTER SHOPPER
P.O Box F133
Titusville, FL 32780 1-800-327-9920
Monthly magazine with hundreds of classified ads for software and used equipment. Money back guarantee Subscription $10 per yr.

VIDEOTEX/ DATA TERMINALS

PROFESSIONAL COMPUTER SYSTEMS
P.O. Box 6422
Wheeling, WV 26003 . . . (304) 232-0253
RCA VP3501 VIDEOTEX/DATA TERMINAL. Built-in modem, printer interface, color graphics, sound, highly portable, very rugged, connects to most info. networks & time-sharing computers. Get a free hour on DOW/JONES, CompuServe, THE SOURCE (limited offer). $368 call VISA/MASTERCARD CK

Don't trust the computer clergy—learn the language

The priests of computing are at it again (John Unger Zussman, "Random Access," November 15 and 22, 1982). Once more, they tell us poor illiterate slobs that *they* will take care of our needs. We shouldn't worry about the terribly complex job of learning to read and write for the computer. Trust the priests. They understand these mysteries and will interpret them to us—in the form of "user-friendly software."

Zussman and his brethren in the computer clergy would do well to review the history of the printing press, the resulting struggle between entrenched church authority and an increasingly literate and independent congregation, and the final acceptance of universal literacy as the central goal of public education.

Literacy and personal freedom are closely tied. Literate people can read and write for themselves. They are not forced to depend on experts to read signs, want ads and agreements or to write letters to friends or their representatives in Congress.

Math literates can solve arithmetic problems for themselvs. They do not have to trust experts to tell which is a better deal: three grapefruit for 80 cents or four for a dollar. Computer literacy, which includes both knowledge and skills, is like these other literacies. It gives the possessor independence and freedom of choice.

By the time today's eighth-graders seek work, three-quarters of the U.S. jobs will be in handling and processing information. People who can work skillfully, creatively and independently with computers will rise to the top. Those who know only how to answer multiple-choice questions on a "user-friendly menu," created by a computer expert, will sink to the bottom.

Zussman's analogy between music literacy and computer literacy is way off the mark. Performance skills in music take years of painful and dedicated work to develop. Young learners complain bitterly. The market for music skills is fairly small.

Performance skills in computing come easily. Young learners are eager for more. The market for computer skills is vast and growing.

It may be that the computer priesthood would *like* us to believe that the subject is terribly difficult; but the fact is that in one semester an average eighth-grader can learn how to operate a computer, the grammar and spelling rules of a computer language, the concepts of variables and data, the top-down methodology for program design and the use of disciplined structures for solving problems in logic.

Except for computer languages themselves, no "user-friendly" software that I know of gives the user a single one of these important problem-solving tools.

To the readers I say this: The next time someone tells you that you don't need to learn to read and write for the computer to use it, ask who he works for. Like as not, you will have just met a man of the computer cloth. If you like being read to in Latin, he's your man; otherwise, go learn to read and write for yourself. You'll probably enjoy it.

Arthur Luehrmann
Berkeley, CA

Technical literature helps products sell when it's done well

I'm responding to your August 30 issue on documentation. May I include some of my thoughts and observations on technical writing?

From a memorandum submitted to management: "Consumers are becoming more concerned with product service and maintenance. On their demand, more technical literature is finding its way into the point-of-sale contact with potential customers. In

See Writing, page 52

DATASCOPE

Don't pay $500 to $1000 for a data base/file manager when you can get the best for only $195.

- Easiest to use—Menu driven
- Creates file structures in minutes
- Prints mailing labels
- Prints form letters & envelopes
- Prints computer checks
- Includes billing system and
- Gen. ledger accounting systems
- 8" Disks · CP/M and MBASIC required.

Test disk and manual in reusable plastic mailer - $15

SUNWEST SOFTWARE
2000 S. Logan
Denver, Co. 80210
(303) 777-9400
(dealer inquires invited)

- DATASCOPE TM of Sunwest Software
- CP/M TM of Digital Research
- MBASIC TM of Microsoft

Introducing DataFax...the easy way to tame your Data Monster.

If you deal with information, you're probably dealing with a Data Monster.

He's that mass of notes. Scribbled messages. Phone numbers. And all the thousand-and-one other important pieces of information you have floating around your life.

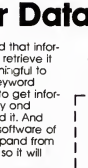
But with **DataFax** from Link Systems, you can keep your Data Monster under control—plus have a lot more power over your information than you ever thought possible.

Unlike most "data manager" software programs made for your Apple, DataFax doesn't care what your data looks like. Or how long it is, how many items it has or what you want to do with it.

The power we've programmed into DataFax makes it as simple and natural to use as a pencil and paper. You can fill up a screen with anything you want—even information already stored on disk. Then cross-reference it as many different ways as you'd like—by a date, a species, a customer's name, whatever.

So when you need that information, DataFax will retrieve it in a way that's meaningful to you. The powerful keyword function allows you to get information out as quickly and easily as you entered it. And DataFax is the only software of its kind to let you expand from floppy to hard disks, so it will never be obsolete.

If getting so much power for so little effort seems too good to be true, send us the coupon and we'll send you all the details. Or see your Apple computer dealer and prove it to yourself—before your data situation gets any hotter.



Because whether you've got a monster of a data problem—or just a small one—DataFax can tame it.

I want to tame my Data Monster.™

☐ Please rush me more information
Apple II ____ Apple III ____
☐ Dealer inquiry.
☐ Send me (quantity) ____
DataFax for the Apple II at $199 each. CA residents add 6% tax. Shipping in U.S.A. $3.00 for first copy, $0.50 each additional copy. Foreign, please add an additional $10 shipping and handling charge per order
Payment by
☐ VISA ☐ MasterCard ☐ Check
Credit Card # ____
Expiration date ____
Interbank #(MC only) ____
Signature ____
Name ____
Company ____
Address ____
City ____
State ____ Zip ____
Mail to: Link Systems
1640 19th Street
Santa Monica, CA
90404
(213) 453-1851
IW

Apple is a registered trademark of Apple Computer Co., Inc

LINK SYSTEMS™

Simply powerful software that links it all together

© 1982 Link Systems Inc.

Let them play games: how to keep the military alert

I was reading about micros in the military (October 18, 1982) and came across Major Frank Derfler expressing concern about games running on "legitimate" computers at a Strategic Air Command base. Having stood many days of duty in the Navy, I can think of no more legitimate use for a microcomputer than playing games. This must at first seem ridiculous, but think about it.

These men and women are supposed to be on "alert," but they are in a situation that promotes boredom, drowsiness and dulled reactions.

Computer games, on the other hand, train you to be awake, alert, quick witted and quick in your reactions.

In fact, as a taxpayer, I would be appalled to walk into one of the thousands of watch stations, ready rooms and other alert facilities in the military and find an expensive microcomputer sitting idle in front of a serviceman (sitting idle) when he could be putting it to great use. A fully configured microcomputer is going to cost $4000 to $5000. Why should it only be used a few hours a day, when for a few dollars more in game programs it could be used much more—perhaps all day?

Maybe the military could make these games more respectable by establishing certain criteria for what they should accomplish. They could assign some of their standby crews to test and evaluate games for applicability and conformity to the standards.

I would have reservations about a flying game in which a player who has crashed still had two more planes in reserve. This attitude might not be a good habit for a pilot to acquire, but for other servicemen, it would be okay.

Most of the games that test reactions, wits, your brain and your body would be good training for anyone.

The military could even assign some of its standby crews to write new games, thus giving us more technically capable and "computer-literate" servicemen.

Brian M. Godfrey
Gaston, OR

Writing

continued from preceding page

an increasing number of cases, the supporting technical literature will make or break the sale.

"Such literature should, then, by its professional appearance and content, help build user confidence and with that a desire to buy. Post sale, that same technical literature, which now becomes an important part of the user's facility, must support the wisdom of choice by its completeness, accuracy and ease of use.

"In so doing, good technical literature aids the further development of user confidence in the product, and tends to build up a preacceptance of other products from an obviously competent source."

We need to put more good technical literature in the hands of our users, so they can more successfully use our products.

Management needs to become more aware of the importance of technical-publications departments. Good, sound technical publications, or the lack thereof, can literally make or break a company.

I'm also concerned with the presentation of technical material. In essence, I follow the empirical lead of the military: Unless you have a closely controlled readership, never write much above the sixth-grade level! Know your reader and his or her *proven* ability to read and absorb written information, particularly when the information must be complex or difficult to present.

As pointed out by Tom Shea, "Really good technical writing should be interesting and entertaining enough that you should want to read it for itself if you have a free evening."

Beyond this, avoid company-generated jargon and nonstandard technical terms like the plague!

Finally, engineers seldom make good writers. A technical writer is a curious and imaginative individual who can write. He need not have a college degree, just a well-rounded education that touches on all possible fields, a good grasp of grammar and spelling and the ability to fall in love with the subject.

It also helps if he can type.

Jay N. Woods
Hayward, CA

Another business solution from Emeritus —

dBase II

for Televideo® Systems

dBASE II is what database management is all about!

It's an information handler, not a file handler. And it's interactive so that data entry is easy — even untrained personnel can accurately run complicated applications!

With dBASE II you're in full control of all database operations. Entire databases can be moved, copied or otherwise manipulated without having to re-enter your data. Changes take only a few simple commands. And unlike other systems, dBASE II doesn't make you change the way you do business. You can even use your own forms!

dBASE II is one more business solution from Emeritus — the distributor you can count on for FAST DELIVERY, PROFESSIONAL EXPERTISE and TOTAL SUPPORT!

EMERITUS DISTRIBUTING

West Central Region and Corporate Offices
1975 N. Gateway Blvd. • Fresno, CA 93727
(209) 251-3525

Northwestern Regional Offices (206) 455-1314
Western Regional Offices (408) 733-4532
Southwestern Regional Offices (714) 991-4220

Pictured is 'Bottom Line Strategy' — a new business graphic product for Televideo Systems from Ashton-Tate, authors of dBASE II.

Sales exclusively to dealers, OEM's and systems houses.

SoftwareBanc

Abstat $379.00
NEW! Statistics
for your dBASE II™ files

1-800-451-2502
(617) 641-1241 in Boston
881 Mass. Avenue
Arlington, MA 02174

Apple II Business Graphics is command-driven

By Joel Pitt

The widespread use of microcomputers has resulted in major changes in methods of making business decisions. The most widespread application of micros in decision making is probably attributable to VisiCalc and other spreadsheet packages. The use of microcomputers for business graphics is rapidly growing in importance.

Graphs are used in businesses both as a tool for exploratory analysis of data and for presentation of data. Examples of the latter include the charts and graphs that we see regularly in our newspapers or in corporate stockholder reports. Use of the former is increasing with the development of microcomputer tools that facilitate the creation of graphs.

FEATURES: Apple II Business Graphics is a command-driven graphics package that allows users to draw scatter, line, filled-area, vertical and horizontal, bar and pie graphs from their data. You can enter data by hand, using the package's integral editing facility, or data can be read directly from files maintained in a wide variety of data formats.

You can draw graphs produced by Apple Business Graphics on the Apple video display (in color when the CRT can produce it) or, as the package is originally supplied, on the Apple Silentype printer, the Qume Sprint 5 daisy-wheel printer and the HP7225A/B and HIPLOT DMP-3 and DMP-4 pen plotters.

Business and Professional Software, the developer of Apple Business Graphics, sells a dealer-oriented package called PIK that allows dealers to install drivers for any one of an additional 25 devices (including the popular Epson MX80 printer and the new HP7470 plotter) as part of the Apple Business Graphics program.

You can get the best quality presentation of graphics with plotters, but few currently available Apple graphics packages support plotter output. Apple Business Graphics does—a significant plus.

Users create "take" files of Apple Business Graphics commands and can direct Apple Business Graphics to take its input from these files. This command facility is unusual in a microcomputer package; it's more customarily found in advanced mainframe graphics packages.

You use take files to automate significant parts of chart production with Apple Business Graphics. This is especially convenient when you undertake the time-consuming task of producing hard copies of charts. You can place the necessary commands in a take file and let your Apple run virtually unattended.

See Business Graphics, page 54

InfoWorld
Software Report Card

Apple II Business Graphics

	Poor	Fair	Good	Excellent
Performance	☐	☐	☑	☐
Documentation	☐	☐	☑	☐
Ease of Use	☐	☐	☑	☐
Error Handling	☐	☐	☐	☑

System Requirements

- Apple II
- 48K RAM and 16K RAM card
- One disk drive

Price: *$175*

Business and Professional Software, Inc.
P.O. Box 11, Kendall Square Branch
Cambridge, MA 02142

Super-Calc
(and other CP/M spread sheet)
USERS CON-CALC

- Consolidates up to 256 worksheets
- Adds a third dimension to your electronic spread sheet programs
- Includes logic for Rate of Return
- 8" Disk - CP/M & MBASIC required

Test disk and manual in plastic mailer - $15

$125.00 VISA/MC accepted

SUNWEST SOFTWARE
2000 S. Logan
Denver, Co. 80210
(303) 777-9400
(dealer inquires invited)

- CON-CALC TM of Sunwest Software
- SuperCalc TM of Sorim
- CP/M TM of Digital Research
- MBASIC TM of Microsoft

Attention All Advertisers Who Want to Reach the Computer Reseller Market

INTRODUCING ISO WORLD

ISO WORLD gives you all these channels of distribution with one media buy:

- Retailers/Dealers
- Agent/Manufacturer Reps.
- Wholesalers/Distributors
- Consultants
- Hardware/Software OEM's
- Service Vendors
- Systems Integrators
- Volume End Users
- Systems Houses

That's over 30,000 qualified subscribers among Independent Sales Organizations from coast-to-coast. And, four times a year we reach an additional 13,000 plus ISOs abroad.

ISO WORLD gives you Reader Response Cards — FREE. You'll not only get immediate response from your ad, but we'll compile your responses on pressure-sensitive labels that let you respond immediately

ISO WORLD's editorial format reaches all segments of the ISO marketplace, (not just dealers or retailers).

Don't you want to get more for your advertising dollar? ISO WORLD gives you more. More reach, more response and more editorial coverage. We'll be glad to send you our 1983 Media Kit. Contact your local sales rep or Lisa Jaros toll-free at 1-800-343-6474. Or fill out the coupon below and mail it in.

Mail To:
ISO WORLD, 375 Cochituate Road, Box 880, Framingham, MA 01701

☐ **Please send me the 1983 ISO WORLD Media Kit.**
☐ **Please send me subscription information.**

Name _____ Title _____
Company _____
Address _____
City _____ State _____ Zip _____

ISO WORLD

SALES OFFICES

BOSTON — Claire E. Wallace, 375 Cochituate Road, Box 880, Framingham, MA 01701, (617) 879-0700

NEW YORK — Brian J. Murphy, Phillip Smith, Paramus Plaza 1, 140 Route 17 North, Paramus, NJ 07652, (201) 967-1350

PALO ALTO — Donna Pomponi, 257 Lytton Avenue, Palo Alto, CA 94301, (415) 329-8220

IRVINE — Art Shields, Jill Dondel, Suite 244, 18004 Skypark Circle, Irvine, CA 92714, (714) 754-0187

Business Graphics

continued from preceding page

Using take files, along with an Apple Business Graphics Wait command, when you make live presentations is effective and convenient. The program automatically draws on a TV screen and pauses when you need time to embellish your explanations.

The program provides a wide range of user commands to help customize graphs. A comprehensive system of defaults spares casual users from the necessity of specifying their charts in full detail. Users can specify scales for graphs, center titles on either axis or above the graph, or, using a "floating title" facility, they can put vertical or horizontal labels at any place they choose.

You can override the program's default color choices and can place vertical and/or horizontal grid lines on your charts. You have eight different marks to indicate points on scatter charts, which you can connect by solid lines or any of five different kinds of dashed lines.

With Apple Business Graphics, you can draw graphs of several different data sets on the same chart. Multiple-bar charts can have as many as four different bars side by side, and bars can be filled or unfilled. You can mix lines and bars on the same chart.

Although you cannot display more than one pie chart at any one time, you can specify the aspect ratio of pie charts and even create pies with missing slices.

The package supports exploratory uses of graphics by providing data-manipulation and curve-fitting commands. Simple English-language commands allow you to add, subtract, multiply or divide elements of a data set, either by a constant or the elements of another data set.

You can fit, using the method of least squares, a line, logarithmic curve, parabola or sine curve to the data, and you can display additional values generated from the fit as well.

By using a Distribute command, you can create a new data set in which values are the percentage of a given data set's elements that fall into each interval of a given set of intervals. With this command, you can construct histograms of given sets of data easily.

PERFORMANCE: Apple Business Graphics responds to user commands quickly and efficiently. Graphs drawn on the CRT display are quickly produced. The software fonts used for the titles are attractive. If you don't like the aesthetics of the default color choices, you can easily override them.

The algorithm that decides the automatic-scale factors performs well. I tested Apple Business Graphics' automatic-scaling algorithm with a data set from a competing package. I wanted to see if the program would produce an inappropriate scale that would then require a deliberate override. I found that Apple Business Graphics provided a viable scale automatically.

When you display multiple data sets on the same graph, however, Apple Business Graphics requires that you build the graph in stages. Since you can't change the scale after you draw the first graph, and since the program cannot anticipate the scale required by the data sets that are first entered, you may have to explicitly set the scaling rather than rely on the automatic-scaling algorithm.

In drawing bar charts with negative and positive values, the program draws bars from the zero value in the appropriate direction—that is, it draws a vertical bar corresponding to a negative value from the zero point downwards and draws a bar corresponding to a positive value from the zero point upwards.

The program places the axis of such a chart at the low vertical point of the scale, instead of at the zero point of the scale. The chart, in my opinion, does not look good.

Apple Business Graphics lacks some features that may reduce its usefulness for some people. Although you can produce multiple-bar charts with bars side by side, you can't draw

Ask Us The Tough Questions About Inventory, Point-of-Sale, Accounts Receivable, General Ledger, Bill-of-Materials.

Why can't I find an inventory program for a microcomputer to control my large inventory with long complex part numbers?

Solidus International has a solution to your problem. Stockfile™ can handle 9000+ inventory items with a 4–20 character long part number, and the Stockfile Premium System™ can handle 65,000+ inventory items with a 4–30 character part number. Both programs can handle alpha-numeric part numbers with dashes, slashes or any other character from the keyboard.

How long will it take to get the information on my inventory?

Stockfile can access any one of its 9000+ line items within two (2) seconds and the Stockfile Premium System also can access any one of its 65,000+ line items within two (2) seconds.

Is there a point of sale program that will automatically adjust my inventory and accounts receivable at the time of sale?

Stockseller,™ another in the family of programs from Solidus International, is a truly integrated partner to Stockfile. When you prepare an invoice or credit memo with Stockseller, it automatically posts the changes to your Stockfile inventory.

Will either of these programs give me the reports and information that my business needs in this competitive environment?

Absolutely. Stockseller is really three programs in one. In addition to point-of-sale functions such as: invoices, customer orders, quotations, packing slips and credit memos, Stockseller maintains a complete Accounts Receivable and credit information on any one of 1750 customers. The Stockseller Premium System maintains the same information on any one of 65,000+ customers. With both systems, an individual customer can be accessed within 2 seconds. Stockseller can prepare 18 specialized sales analysis reports such as: sales commission reports, sales tax reports and year-to-date sales. Analysis can also be made by product category, sales territory, and net profit. Additionally you can define your own reports to meet the needs of your own business.

Stockfile will help control your inventory to avoid overpurchasing or avoid shortages with reports such as turn-over analysis, date last sold, and a shortages report.

What will it take to install these programs in my business?

All Solidus International products are designed under the assumption that you know more about your business than any packaged program can anticipate. Installation will require some careful definition of the way you do business so that you can customize the program to meet your needs. No programing is necessary. After installation, the program has logical menus and is backed by extensive documentation. Of course, customer support is readily available from your dealer or Solidus International.

What other systems fully integrate with Stockfile and Stockseller?

Stockmaker™ is a bill of materials program for small to medium size manufacturers. It will create a bill-of-materials six levels deep, reserve stock, and create a "where-used file." Stockledger,™ a new program from Solidus International, is a true general ledger with a complete budget and financial reporting system. A special feature is a complete integrated check register to minimize data entry. Every check is automatically posted to the General Ledger.

Will this program run on my Apple II™?

Yes, and on your Commodore 64™ or 8032™ and soon on your IBM PC.™

SOLIDUS INTERNATIONAL CORPORATION

CANADA
SUITE 6, 144 WEST 15TH STREET, NORTH VANCOUVER BC, CANADA V7M 1R5
604-984-0477

USA
215 WEST HOLLY STREET, SUITE 241, BELLINGHAM, WASHINGTON 98225

UNITED KINGDOM
MILL HOUSE, WANDLE ROAD, BEDDINGTON, CROYDON, ENGLAND

Apple II is a registered trademark of Apple Computer. Commodore 64 and 8032 are registered trademarks of Commodore Business Machines. IBM PC is a registered trademark of International Business Machines Corporation.

MAILMASTER™

Mail List Management System

- *FILE SIZE LIMITED ONLY BY DISK CAPACITY*
- *SEARCHES A 5000 NAME FILE IN UNDER 2 SECONDS*
- *ACCOMMODATES U.S. AND FOREIGN ADDRESSES*
- *USER DEFINED CODE FIELDS*
- *SELECTIVE PRINTING OF LISTS AND/OR LABELS*
- *WRITES A WORDSTAR FILE FOR PERSONALIZED MAILINGS*

Mailmaster™ - Mail List..... $250
Mailmaster™ - Zip Sort..... $250
Both (purchased together)..... $400

Also Available in COBOL:

Daymaster™ - Appt. Mgr $100
Ledgermaster™ - Client W/U.... $950
General Ledger $500

Available for CP/M® and MP/M™
Available soon for IBM, MS-DOS™, CP/M-86™, and MP/M-86™

Executive Data Systems, Inc.
290 Interstate North, Suite 116
Atlanta, GA 30339
(404) 955-3374

★ ★ *Dealer Inquiries Invited* ★ ★

CP/M, MP/M™ of Digital Research; MS-DOS™ of Microsoft; Wordstar™ of Micropro

stacked-bar charts. On pie charts, you can't highlight a detached slice.

You have to enter labels for monthly data by hand; this particular graphics program does not generate them automatically. You can't frame a graph.

Although the package allows you to fit sine curves to your data, it does not allow you to fit exponential curves to the same data.

Other features of Apple Business Graphics make it a superior performer for other groups of users, however. For example, in filling areas on graphs, you can elect to fill between the curve and the zero line or between the curve and the baseline of the curve, a choice that few other packages offer.

The program delivers its hard-copy output with a speed that seems limited only by the speed of the devices and the interface you use.

EASE OF USE: Typically, command-driven packages are more difficult to use than menu-driven packages because of the initial effort required to learn the specific command names. Apple Business Graphics eases the novice's burden by providing a help facility. If you type "help," the screen displays a list of the package's major categories and advises users they can obtain further help by typing "help" followed by the category name. The program has 14 such additional help screens.

Once you learn its wide variety of commands, you will find Apple Business Graphics reasonably easy to use. You can abbreviate a command to the minimum number of characters needed to distinguish it from other commands.

For example, you can enter the command to draw a bar graph as "DR B"—the DR is sufficient to indicate the verb draw, the B distinguishes the noun bar and the program assumes as a default that the bars you wish to draw are the more commonly preferred vertical bars rather than horizontal bars.

The take-command file capability makes the package considerably easier to use. You can save settings and titles for specific classes of graphs in these files and recall them automatically. Unfortunately, learning to use this command is difficult, and the documentation is obscure.

The integral editor is difficult to use, but these difficulties are mitigated by the ease with which the package can access data from external sources. Users who don't like the editor can readily produce their data files using the screen-oriented editor of the Apple Pascal system and transfer that data to Apple Business Graphics.

ERROR HANDLING: Apple Business Graphics responds to incorrect commands with a beep from the Apple speaker and a message that reads "? UNKNOWN COMMAND, TYPE "HELP" FOR HELP". Commands that would clear the current data are greeted by a message asking for confirmation, if you have not saved the data already.

On the whole, the package's designers have thoughtfully anticipated the usual run of user errors and have guarded against them well.

DOCUMENTATION: The documentation for Apple Business Graphics is somewhat uneven. Parts of it are excellent. For example, the manual begins with a tutorial that is well written and well paced. It can take a first-time user through most of the major features of the package in an hour or two.

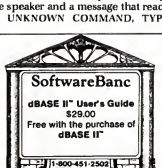
On the other hand, the documentation often fails to give adequate explanations of some of the package's more difficult features (for example, the set virtual file command) and is marred by many errors that diminish its value.

One notable feature of the documentation is the thorough discussion of the package's internal file formats. The manual carefully documents ways in which you can have Apple Business Graphics interact with other programs. This kind of support is unusual in a copy-protected program, and it makes Apple Business Graphics a more versatile and more valuable product.

SUPPORT: Business and Professional Software, the author of Apple Business Graphics, has a full-time staff member available for telephone support of the product. I called him with several questions—without identifying myself as a reviewer—and found that he was knowledgeable, open and helpful.

Unfortunately, none of the papers or documentation included in the Apple Business Graphics package indicate that this sort of help is available, and users who are less aggressive may fail to discover it.

SUMMARY: Apple II Business Graphics is a well-designed, powerful and advanced tool. It is one of the better graphics packages currently available for the Apple. It is more difficult to use than a menu-driven package, and less experienced users might not be comfortable with this program. For users who can take advantage of its substantial power, however, it is an excellent tool. ■



InfoWorld
The Newsweekly for Microcomputer Users
530 Lytton Avenue
Palo Alto, California 94301
(415) 328-4602

A PRICELESS COMMODITY:
A SENSE OF DISCOVERY
EVERY SINGLE WEEK

Because there are so many gems of information in every issue of *InfoWorld*, people read it eagerly, with a sense of discovery. This priceless reader attitude is a rare commodity these days, when so many publications look alike and read alike.

Business people get a wide variety of magazines every week, and on Monday, you can bet the publication they pull from the pile and read right away is *InfoWorld*. The intensity with which each *InfoWorld* reader studies an issue has been a great asset to our advertisers.

Increase your rate of response. Invest your ad dollars wisely, in the only microcomputer newsweekly.

CP/M

Agate Systems announces the introduction of the **Fire and Casualty Executive Package.** The F.A.C.E. package includes the Insurance System, Accounts Receivable, Database Management System and a linking program to WordStar and MailMerge. The linking program works in conjunction with dBASE II to send out marketing letters and dunning letters for overdue accounts.

F.A.C.E. produces over 120 reports in the Insurance System and Accounts Receivable. All programs are integrated to the General Ledger and the Accounts Payable. F.A.C.E. uses either an 8- or 16-bit CP/M operating system with 64K. The complete package is priced at $3995. Agate-Systems, Inc., 278 High Street, Holyoke, MA 01040.

Other

Micro-Crop introduces a wide range of application software targeted to the agribusinessman. Written in R/M COBOL, these packages are not specific but can run on virtually any microcomputer. The total Micro-Crop package includes **Crop Management, Farm Equipment, Farm Supplies, Commodity Billing and Inventory, Farm and Grower Payroll with Piecework, Fertilizer Dealer, Nurseryman and Florist.** All programs are issued on single-density 8-inch disks. Micro-Crop, 8245 NW 53rd Street, Miami, FL 33166.

Horizon Software's new word-processing program runs on UNIX and UNIX look-alikes.

A new word-processing package that runs with UNIX and UNIX look-alike operating systems is available from Horizon Software Systems. The software is designed for use in instrumentation, automation and data-processing environments. **Horizon WordProcessing** offers easy document creation, full-screen editing, complete formatting and document management.

Horizon runs on any UNIX-based operating system with a video-screen terminal and a system printer. It requires no special equipment and sells for $750. Horizon Systems, Inc., 220 Downey Street, San Francisco, CA 94117.

Radio Shack

Two educational software packages for the TRS-80 are available from Modtec. **Auto-Graph** is a program for graphing math formulas on the Models I and III. Price is $24.95.

Copy-Tape allows users to duplicate BASIC, system or data tapes. Features include forward tape advance and verify-tape copies. Price is $11.95. Modtec, 4144 North Via Villas, Tucson, AZ 85719.

InfoWorld is unable to test every product announced in this section. All claims attributed to the products have been made by manufacturers or by firms marketing these items.

DON'T GET CAUGHT SHORT

Save your cash when acquiring new computers for your business. Lease it!!

- Minimum deposit
- Five year terms
- Fixed rates
- Fixed purchase option
- New businesses OK

$2,500 — $100,000

California and Nevada
Fast professional service

COMPUTER LEASING

HB ENTERPRISES
3231 Ocean Park Blvd., Suite 109
Santa Monica, CA 90405
Phone: (213) 870-3735

Our Leases are user friendly

The Quasar Hand-Held Computer from Matsushita

By Scott Mace, IW Staff

The Quasar HHC (Hand-Held Computer) is one of several hand-held computers to appear within the last year. Parent company Matsushita's other subsidiary, Panasonic, released essentially the same machine. Both are similar to the Radio Shack Pocket Computer, with features such as one-line, 26-character liquid-crystal displays and calculator-pad-like keys on a QWERTY layout.

FEATURES: A 6502 microprocessor governs the HHC. System capacity includes up to three 16K plug-in ROM capsules or 4K of EPROM capsules and 2K or 4K of CMOS RAM. This CMOS and rechargeable nickel-cadmium batteries allow the computer to "remember" files even when turned off or when batteries are in need of recharging.

Like many calculators, the HHC remembers your last screen entry when turned back on. In order to conserve power, the computer shuts off after ten minutes, though with the CMOS memory, you don't lose data or files.

The HHC's operating system is actually a self-instructing, multiple-choice menu system. This approach to operating-system design is new to microcomputing. The HP-75 now has a similar menu-driven structure.

Each option in each hierarchical menu is displayed in "round-robin" fashion with its corresponding number. This works in two ways. The HHC can either require you to select a number to start an operation, or it can present a set of numbered operation settings that you can leave alone or reconfigure individually by selecting the appropriate number.

As you add or take out application capsules (which function as diskettes do in a microcomputer) or peripherals, the CPU automatically readjusts the menus, so there is no chance of encountering a nonexistent option. Options 1 through 9 are followed by option A, B and so on.

Quasar offers a number of peripherals as options for the HHC, and I will discuss some in this review. Among them are a 300- or 110-baud acoustic-coupler modem; a TV adapter to display multiple lines on a TV or monitor; an RS-232C interface that lets you use serial peripheral devices, such as printers, with the HHC or lets the HHC communicate with other computers; a small (15-column) thermal printer; an adapter for I/O to these devices using the HHC interface; and an additional RAM module of 4K, upgradable to 6K or 8K.

You can attach six such upgraded units and use them all at one time with the HHC to store files, programs or text. Recently Quasar also has released a wide-tape four-color plotter.

The TV display adapter supports up to nine colors including black. Quasar has two modes for color graphics: 64 graphic dots by 32 lines and 64 graphic dots by 48 lines.

The optional additional RAM peripheral has a backup power supply of three AAA manganese batteries with a life of about 12 months. These batteries maintain information in the RAM unit when it is disconnected from the HHC.

A sticker on the battery door indicates when you need to replace the AAA batteries. Evidently when you change these batteries, you would be wise to have the RAM peripheral plugged into the I/O adapter for power to preserve auxiliary RAM memory.

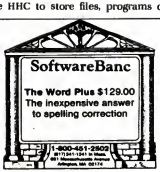
All the devices reviewed (except the plotter) fit into an attaché case that allows you to carry and use the system just about anywhere you can put it on your lap. The batteries run all the devices, including printer and modem, though you must open the case to insert the AC recharging cable when you recharge.

Three programming languages are available for the HHC. One is Microsoft BASIC, and two others are Quasar's SnapBASIC and SnapFORTH, written in Snap, a Forth-like language that can call any of the instructions for the HHC's 6502 microprocessor so critical subroutines can be written in the assembler for speed of execution.

Other standard software for the HHC includes a calculator; a clock/controller that incorporates a message and alarm system; and a flexible file system.

Three slots under the back of the HHC accept plug-in program capsules. Among the application capsules sent with our review copy were Time/Trac, a professional time-accounting

See Quasar, page 58



Interested In dBASE II™?
There's A SoftwareBanc Seminar Near You!

Introduction To dBASE II™ 9-5 $100

Advanced dBASE II™ Techniques 9-5 $100

ATLANTA
April 24 Intro
April 25 Advanced

BOSTON
March 4 Intro
March 5 Intro
March 7 Advanced

CHICAGO
March 18 Intro
March 19 Intro
March 20 Advanced

HOUSTON
February 4 Intro
February 5 Intro
February 6 Advanced

LOS ANGELES
January 7 Intro
January 8 Intro
January 9 Advanced

MIAMI
December 28 Intro
December 29 Advanced

NEW YORK
February 25 Intro
February 26 Intro
February 28 Advanced

SAN FRANCISCO
April 8 Intro
April 9 Intro
April 11 Advanced

WASHINGTON DC
January 21 Intro
January 22 Intro
January 23 Advanced

ANCHORAGE, HONOLULU, LONDON—Dates to be announced
In 1982, over 1,000 people around the country attended dBASE II™ classes taught by Adam B. Green, author of the dBASE II™ User's Guide. Private classes have been taught for Citibank, Digital Equipment Corporation, and the Internal Revenue Service.

Now SoftwareBanc Seminars is proud to announce a second year of classes. Don't pass up the opportunity to attend in 1983. Register now for a dBASE II™ class taught by the dBASE II™ experts.

SoftwareBanc Seminars
661 Massachusetts Avenue
Arlington, MA 02174
(800) 451-2502
(617) 641-1241 in Mass.

Quasar

continued from preceding page

system; The Financialist, an annuity/rate calculator; and Portawriter, a word-processing program.

Other capsules now available include PortaFLEX, a data-entry language; Scientific Calculator; Telecomputing 1 and 2; and RS-232C control. Prices for capsules range from $45 to $150.

Early next year Quasar will release The Financialist and Portawriter, mentioned above; Portabudget, a checkbook-management program; Graphic Plotter, a VisiPlot-type program for creating bar and pie charts with the four-color Quasar plotter; and Porta-Calc, a spreadsheet-type program.

The capsules are shaped in such a way that it is virtually impossible to install them backwards. This thoughtful touch is not highlighted in the manual.

Here is an example of how the menu system works. My system displays the following options, one after the other, and repeats the first option after displaying the last:

1 = CALCULATOR
2 = CLOCK/CONTROLLER
3 = FILE SYSTEM
4 = RUN SNAP PROGRAMS
5 = TIME/TRAC
6 = Microsoft BASIC
7 = Portawriter
8 = SERIAL I/O
9 = TELECOMPUTING
A = TYPEWRITER

If I select option 2, I type 2 and the following menu of options is displayed:

1 = SET ALARM
2 = REVIEW
3 = ACKNOWLEDGE
4 = TIME
5 = SET TIME

The other options operate in similar fashion. You can return to the previous menu by typing CLEAR, and you can return to the primary menu at any time by typing CLEAR twice.

Attaching peripherals is accomplished in a similar manner. If you press the I/O key at the upper right, the HHC enters an I/O menu, and by selecting one of the menu numbers you attach the connection to that peripheral. A sample I/O menu looks like this:

1 = RS232C IN, OFF, SLOT = 2
2 = RS232C OUT, OFF, SLOT = 2
3 = PRINTER OUT, OFF, SLOT = 3
4 = VIDEO OUT, OFF, SLOT = 4
5 = MODEM IN, OFF, SLOT = 5
6 = MODEM OUT, OFF, SLOT = 5
7 = INT RAM, 2697 FREE
8 = EXT RAM, 6134 FREE, SLOT = 1

To turn any of these devices on, you must type the menu number desired. The HHC briefly indicates the change in on/off status for that particular device. You can then return to the primary menu by pressing the I/O key or the CLEAR key.

According to Quasar, the HHC is intended for use as a data base or problem-solving tool in remote or harsh environments, as a source data-entry terminal that can send data to or receive data from another computer and as a timesharing terminal that can interact with large, centralized data bases.

The HHC itself is about 9 inches wide, 1-1/4 inches deep and 3-3/4 inches tall. It weighs 1 pound, 4

InfoWorld
Hardware Report Card

Quasar HHC Hand-Held Computer

	Poor	Fair	Good	Excellent
Setup	☐	☐	☐	☑
Ease of Use	☐	☐	☑	☐
Performance	☐	☐	☑	☐
Documentation	☐	☐	☑	☐
Serviceability	☐	☐	☐	☑

Features of System Tested

- 1-MHz 6502 main processor
- 1-line, 26-column LCD display
- 4K internal RAM
- Optional external RAM with 8K
- 16K internal ROM with three sockets for ROM capsules up to 16K each or EPROM capsules up to 4K each
- Optional RS-232 port
- Optional acoustic modem
- Optional TV video adapter with two modes of color graphics
- Optional 15-column Micro Printer
- Optional 40-column Mini Printer
- Optional four-color plotter
- SnapBASIC
- SnapFORTH

Price: HHC: ***$479*** with 8K
$379 with 4K
$329 with 2K
External RAM: ***$350*** with 16K
$250 with 8K
$150 with 4K
RS-232 module: ***$250***
I/O adapter: ***$150***
15-column printer: ***$225***
40-column printer: ***$295***
Acoustic modem: ***$250***
Combination modem and cassette storage device: ***$295***
TV video adapter: ***$295***
Four-color plotter: ***$475***
Attaché case: ***$170***
Large AC adapter: ***$45***
Small AC adapter (can run HHC and one peripheral): ***$20***
I/O extension cable: ***$85***
Capsules:
SnapFORTH: ***$150***
SnapBASIC: ***$120***
Microsoft BASIC: ***$77***
PortaFLEX: ***$80***
Time/Trac: ***$99***
Scientific calculator: ***$45***
Telecomputing 1: ***$38***
Telecomputing 2: ***$42***
RS-232C control: ***$38***

Quasar Company
9401 West Grand Avenue
Franklin Park, IL 60131

HIGH-TECH CREATIVE Rx
ZHIVAGO ADVERTISING
417 TASSO STREET • PALO ALTO, CA • 94301 • (415) 328-7830

NOW – A POWERFUL Z80 CP/M[1] EDITOR FOR ONLY

$25

That's right. WYLBUR[2] editors have been popular on IBM mainframes for over a decade. Micro-WYL implements all of the common WYLBUR commands with complete features for

collecting, inserting, deleting, replacing, and modifying text. Moving or copying text within a document. Copying text from external files. Global search and change operations. Listing control.

Marketing experts recommended a price of $75-300

In fact Micro-WYL has been marketed at $250/copy. So why are we selling it at $25? We have cut our overhead to almost nothing – you are getting the product directly from its authors. We believe that there is an enormous market for high-quality, low-cost software. We intend to make a handsome profit by having thousands of satisfied customers.

We guarantee your satisfaction

If after reading the manual you feel that Micro-WYL is not for you, send it back with the sealed diskette unopened within 30 days. On the other hand, if you decide that it's as good as we believe, we authorize you to make copies of the manual and diskette for your friends at $15 each. We'll put all of you on our mailing list for updates and enhancements.

If you feel that you must have proportional-spacing, justification, etc. there are good word processors in the $75-500 range. But for most users, Micro-WYL represents an incredible bargain. It is easy to learn, easy to use, and incredibly powerful. **Send your check today – we'll ship within 4 days of receipt.**

[1] CP/M is a registered trademark of Digital Research, Inc.

[2] WYLBUR is a registered trademark of The Board of Trustees of the Leland Stanford Junior University

Make your check out to:
Realworld Software, Inc.
913 S. Fourth St.
Suite 103
DeKalb, IL 60115

Amount:
$25 plus $2 for postage and handling.

CRT type _____
☐ 8" SSSD ☐ Osborne
☐ KAYPRO II 5" ☐ Apple/Softcard
☐ NorthStar 5" DD ☐ NEC 5"
☐ Superbrain ☐ ALTOS Series 5

Name_____
Address_____
City_____ State_____ Zip_____

SoftwareBanc
When it comes to dBase II™ we wrote the only book and have the finest technical support
1-800-451-2502
617-641-1241 in Mass.
461 Mountain Avenue
Arlington, MA 02174

ounces. The 65-key keyboard includes three programmable function keys and four program-definable keys. The user can redefine 62 keys under program control. The keys repeat if held down.

The display is a 159- by 8-dot liquid crystal, with ten display rates to control the speed of information as it flashes or flows by. The display shows both uppercase and lowercase letters, plus numbers and various symbols.

```
This is a test
of the
Portawriter
Word Processing
System. As you
can see, the
Word Processor
automatically
assigns words
to the next
line when there
is
insufficient
space.
```

This printout from the 15-column HHC thermal printer is actual size. The printer uses 1¼-inch-wide paper.

With modem, 4K RAM, RS-232 port, printer, TV adapter and HHC in the briefcase, the system weighs about 16 pounds. In this state, it's not exactly hand-held, but it's not as heavy as the Osborne, either.

PERFORMANCE: The HHC is tough. I dropped it on several occasions and pounded on the keys, and it survived whatever abuse I hurled at it. The HHC and its peripherals are encased in tough silver-gray and black plastic.

The touchiest part has to be connecting or disconnecting the various HHC peripherals from the I/O adapter, which is mounted on a plastic base that fits into the briefcase. Thoughtfully, Quasar installed an alarm that indicates if one or more of the I/O slot connections is not being made cleanly. Once you remove or completely insert the guilty device, the alarm stops.

Unfortunately, on occasion this alarm persists even when all the devices are apparently all the way in or out. On these occasions I had to push each device in firmly until one of them went in a bit further. The alarm is quite maddening while this search goes on.

Removing the base from the attaché case also requires some finesse, aided somewhat by a strap on the bottom of the attaché case.

Sheer neglect constituted my second abuse test. After leaving the recharger unplugged for a month, I turned on the display to find a random pattern of dots. Something was obviously amiss, as I could not bring up the usual first menu.

After turning off the ALL-OFF button at the back and turning it back on (as the manual suggested), I got a BAT LOW message on the display, indicating I had to revive the battery for a while.

The manual said 24 hours would be sufficient, but the system actually recovered within minutes after I plugged it in. The manual recommends recharging as soon as the low-battery warning appears, however, since the batteries could eventually discharge permanently if you don't recharge them.

When I started playing around with the HHC to see what it could do, I immediately began using the clock/calendar function. The clock is quite clever; after you enter the day, month and year, the computer automatically determines the day of the week.

You can enter short messages in an alarm system, such as: "Editorial meeting today." After you enter an alarm time, the computer remembers, even if turned off, to beep and display the message.

If you miss the beep, when you turn on the display, a small indicating mark appears above the letters ALARM, telling you to read a message that came

See Quasar, page 60

Hands hold Quasar Hand-Held Computer, showing 1-line, 26-column LCD display

DEC USERS !

CP/M® on DEC

You can now use WORDSTAR®, dBASE II®, SUPERCALC®, any CP/M® based software directly on your PDP-11, LSI-11, OR VAX with no hardware or software modifications. Please call for more information on our amazing new products.

COMPUTER RESALE COMPANY, INC.

490 WEST MAIN ST.
AVON, MA 02322
(617)-583-6460 1-800-343-1092
TELEX 710-345-1290

We buy and sell DEC hardware

CP/M is a registered trademark of Digital Research

Your Port to Productivity

One-Stop Printer Shop.
Why drive from computer store to computer store evaluating the few brands they choose to display when you can compare all major brands, features, and functions conveniently from one stop at The Printer Port?

Independent Thinking.
The Printer Port is not affiliated with any manufacturer, franchise, or chain. Your needs are our only concern. High volume sales and experience in repair give us the perspective to judge strengths and weaknesses of all models in each product line.

Technical Expertise.
The Printer Port staff is well aware of problems an end user may encounter. We can make almost any microcomputer communicate with any printer. When you buy a printer from The Printer Port, you buy a printing system guaranteed to work.

Price.
We offer competitive prices and full service. Our minimal overhead and high volume allow us to provide you with the best value for your inflationary dollar. At The Printer Port you get what you paid for and more, including:

Printer sales — in-store and mail order

Interfacing — guaranteed or your money back

Customer ID number — authorization to call us for technical support

Accessories — ribbons, printer wheels, paper, sheet feeders, switch boxes, cables, and more

Just one stop at The Printer Port and you'll be on your way to productivity.

The Printer Port
East Dedham Shopping Plaza
Dedham, MA 02026
617-329-6008

The source for the latest in video equipment-

Adolph Gasser Inc has become a leader in the video industry by delivering service with the sale and by being aware of new technological developments. Let our professional sales staff give you a "hands-on" demonstration of these products and more.

NEW Panasonic® above: NV-8500 Editing System. The first professional ½" VHS system.

WV-777 Video Camera Three tube, ENG/EFP prism optics design.

Adolph Gasser
(415) 495-3852 161 Second St/San Francisco

Diamond Software . . . . .
The IBM PC Software Specialists

Wordstar	$245
Supercalc	$189
Volkswriter	$155
dBASE II	$Call

SPECIAL: Wordstar, Mailmerge, Spellguard **$440** List $940

	Our Price		Our Price
MAILMERGE	$ 85	VISICALC 256K	$189
SPELLSTAR	$155	VISIDEX	$189
SPELLGUARD	$139	VISIFILE	$245
EASYWRITER II	$265	VISITREND/PLOT	$229
CONDOR 20-3	$699	VISISCHEDULE	$229
EASy ACCOUNTING	$499	CONCURRENT CP/M® 86	$299

DIAMOND SOFTWARE SUPPLY INC.
484 Lake Park Ave., Suite 123
Oakland, CA 94610

TO ORDER CALL TOLL-FREE **1-800-227-0545**
in California 1-415-893-7676

At Diamond, we have specialized in IBM PC software from the beginning. Please call (415) 893-7676 for free consultation regarding your PC software needs. Qualified PC software technical support is also available; (415) 893-7676. Ask our competitors if they even have an IBM PC in house

WE ACCEPT VISA, MASTERCARD, AMERICAN EXPRESS, C.O.D.

Mail orders also accepted. Free shipping on prepaid mail orders. Purchase orders accepted from qualified organizations. California residents add 6½ % tax. All items subject to availability; prices subject to change without notice. IBM is a registered trademark of International Business Machines. CP/M & dBA are registered trademarks of Digital Research & International Business Machines Corp.

THE
BENCHMARK®

A Word Processor Worthy of Comparison . . .

FEATURE	BENCHMARK 2.0	Wordstar 3.21	BENCHMARK 3.0
Ease of Operation	YES	NO	YES
Plain English Commands	YES	NO	YES
Use Cursor Keys	YES	NO	YES
Control Characters	NO	YES	NO
Function Keys	YES	NO	YES
Computer Aided Tutorial	YES	YES	YES
Descriptive Directory	YES	NO	YES
29 Character Title	YES	NO	YES
Author & Operator ID	YES	NO	YES
Document Size	YES	NO	YES
Creation Date	YES	NO	YES
Revision Time & Date	YES	NO	YES
Standard Editing Features	YES	YES	YES
Go To Any Page	YES	NO	YES
Interactive Printing	YES	NO	YES
Automatic Reformatting	YES	NO	YES
Automatic Repagination	YES	NO	YES
Headings and Footings	YES	YES	YES
Multi-line	YES	NO	YES
Keyboard Phrases	YES	NO	YES
Proportional Printing	NO	NO	YES
Business Graphics	NO	NO	YES
Paragraph Assembly	NO	NO	YES
Edit Marking	NO	NO	YES
Auto Widow/Orphan Protect	NO	NO	YES
Auto Footnoting	NO	NO	YES
Built In Calculator	NO	NO	YES
Price	$249	$495	$499

DEMAND A COMPARISON!

Call or Write.
Metasoft Corporation, 711 E. Cottonwood, Suite E, Casa Grande, AZ 85222 • (602) 836-6160

Quasar

continued from preceding page

while you were away.

Of course, since you can carry the HHC about anywhere you want to, you are likely to hear the alarm. The HHC's portability makes this sort of application work much better than it does on a conventional desktop computer.

Quasar's choice of application software is pretty basic fare, geared towards utilizing the system's portability. The Quasar does not take the place of a larger microcomputer in all instances, and the cost of peripherals can quickly mount up. For that reason, the HHC is not a toy, but a serious data entry and retrieval device for business and scientific uses.

I looked only briefly at Time/Trac and The Financialist. Time/Trac utilizes the portability of the HHC well. It uses the HHC's internal clock to help you time work for a client or boss, charge and bill him according to your hourly rate and print reports. This should be a hit with lawyers and other professionals. You need a serial printer to print out the reports, but the program reminds you to activate the port if it finds nothing there.

EASE OF USE: All keyboard keys are clearly marked. All keys operate in lowercase and in shift position. By using the 2nd SFT key, you make most QWERTY keys generate standard typewriter symbols such as * or %, plus several kinds of brackets.

All symbols activated by the 2nd SFT key are indicated in orange, but other function-key symbols are also indicated in orange. This is somewhat confusing, as keys with symbols such as M+, divide and multiply are only activated in the calculator mode.

Fortunately, the owners' manual has a handy flip-out color-coded chart explaining the purpose and use of each key during various modes of operation.

The Quasar is no substitute for a typewriter keyboard. The QWERTY keys and space bar are essentially in the right places, but they are so small my fingers kept missing them.

Touch typists will also find the Shift key annoying, since if it is depressed simultaneously with the letter you wish to capitalize, the next letter is likely to be capitalized as well.

If you first press the Shift key, then the letter, the shift is dropped after you type the first letter. The Shift key is designed to revert back to lowercase after capitalizing one letter (unless it is locked), but a simultaneous keystroke usually reactivates it—an annoying problem.

The inadequate size of the keys is going to stop all but those determined to have a hand-held QWERTY keyboard, so unless you're willing to look at the new Espon QX-10 or wait for future products, this is the best keyboard you will get in the hand-held category. (The HP-75's angled keyboard is somewhat of an improvement over the HHC, but not much.)

The LCD display is easily readable, and you can adjust the text-scrolling speed to suit your tastes. A separate video monitor helps readability a great deal.

The system of menus, with the options written in plain English, is easy to use. I was able to begin creating files and operating the peripheral devices within minutes.

The video output is especially helpful. I attached a USI International monitor to the HHC using a video cable borrowed from our Apple II, and I was

Your Business Software

FREE SURFACE FREIGHT
"Quality Products from
Your Business Software Psychologist"™
☆ IBM Format Available

	PRICING Apple II™ CP/M® & IBM®
MICRO PRO INTERNATIONAL®	
Calcstar®	NA / 116
Wordstar®	229 / 269
Mailmerge®	79 / 99
Spellstar®	129 / 139
Supersort®	129 / 139
Customized Notes®	395 / 395
Word Pack®	395 / 495
(Wordstar® + Mailmerge® + Spellstar®)	165 / 195
SILICON VALLEY®	
Word Handler®	195 / NA
EDS (Electronic Data Systems)®	
☆ Communicator Text Editor®	NA / 99
SUI (Information Unlimited Software)®	
☆ Easy Writer II®	NA / 249
☆ Easy Speller®	NA / 129
☆ Easy File®	NA / 289
☆ Easy Planner®	NA / 189
Datadex®	89 / NA
Datadex (Consul)®	169 / NA
SORCIM®	
☆ Supercalc®	NA / 199
ISA (Inventive Software Applications)®	
☆ Spellguard™	NA / 249
COMSHARE TARGET®	
☆ Target Master Planner®	249 / 249
Target Planner/Calc®	39 / 39
Target Planner/Calc Combo®	59 / 59
Target Task®	199 / NA
Target Image Maker®	115 / NA
ASHTON TATE®	
☆ dBase II®	555 / 555
DVEDM Computer Systems Inc.®	
Optimum®	NA / 399
(More Features than dBase II plus Multiuser)	
LEXISOFT INC.®	
☆ Spellbinder®	NA / 319
CONTINENTAL SOFTWARE®	
☆ Home Accounter Plus®	NA / 99
Home Accounter®	49 / NA
☆ Fred Class Mate®	49 / 79
General Ledger®	169 / NA
Accounts Receivable®	169 / NA
Accounts Payable®	169 / NA
Payroll®	169 / NA
☆ Property Management®	329 /Soon
PEACHTREE® — PEACHWARE®	
Buy Peach Text (Formally Magic Wand)® and receive Peachwater Mail-Id Mgr free! Save $675	NA / 500
☆ Series 4 and 4C Accounting Pack GL, AR, AP — Save over $1,200	595 / 595
ACCOUNTING PLUS II®	
Buy 4-Module GL, AR, AP, INV and receive FREE GL-Plus Invoice Pack, Data Plus, Labels Plus. Save over $700	1250 / NA

*Signifies manufacturers' trademarks and copyrighted products

*All manufacturer's license and copyrights must be observed.

Prices are for prepaid orders only and reflect a cash savings, send a cashier check or money order. Charge card orders are slightly higher. All items subject to availability and prices subject to change without notice.

When in Dallas, visit our showroom 10 minutes from downtown.

214/526-3292

Your Business Software
INFO SOFTWARE & ACCESSORIES
201 EAST JEFFERSON · DALLAS, TEXAS 75203 · 214-526-3292

SoftwareBanc

Put an English teacher in your computer
Grammatik $139.00

1-800-451-2502
(212) 541-1241 in Illinois
681 Westmoreland Avenue
Arlington, Illinois 60004

pleased to see a 16-line display of a text file.

Unfortunately, this arrangement is no substitute for a real terminal, since moving the cursor up a line causes the monitor to repeat that line. It is an improvement over the one-line, 26-character HHC display, though. Also, you can't feed the HHC's video display of the primary menu and many of the applications to a monitor.

Using the modem and RS-232C hardware requires more knowledge and work but still is fairly simple for anyone with prior experience. The novice will need more help from the manual and other sources.

When you enter the serial I/O configuration menu, you are faced with a number of choices (five abbreviated some of the messages):

1 = HALF DUPLEX (or HOST FULL DUPLEX or TERMINAL FULL DUPLEX)
2 = 8 DATA BITS (or 5, 6 or 7 DATA BITS)
3 = DROP DATA PARITY BIT (or NO DATA PARITY BIT)
4 = 1 STOP BIT (or 2 STOP BITS)
5 = DISABLED PARITY (or ODD PARITY or EVEN PARITY)
6 = NO PROTOCOL (or ETX-ACK PROTOCOL or RECEIVE XON-XOFF or SEND XON-XOFF or SEND & RECEIVE XON-XOFF)
7 = RS232C AUTOLINEFEED OFF (or ON)
8 = VIDEO AUTOLINEFEED OFF (or ON)
9 = DISREGARD CARRIER SIGNAL (or CHECK CARRIER SIGNAL)
A = DROP HHC ESCAPE SEQ'S (or SEND HHC ESCAPE SEQ'S)
B = 64 CHARACTER ETX BLOCK (or DESIRED LENGTH =)
C = LOW SPEED [110 baud] (or HIGH SPEED [300 baud])

Of course, in this case you would have to know all the particular protocols of the other computer or device, but the HHC provides a surprising degree of flexibility in a small capsule.

The modem configuration and operation is similar, and each program runs off a ROM capsule talking to the HHC from the peripherals themselves. Presumably different capsules could be developed for specialized uses.

I attempted a short transmission from the HHC to an IBM PC using the RS-232C port, and within minutes I

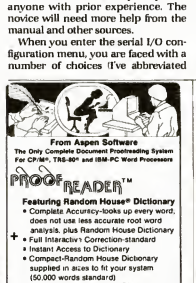
See Quasar, page 62

ARTICLE REPRINTS

InfoWorld is copyrighted. You must obtain written permission from us to reprint or copy our articles. We will handle your reprint requests in one of three ways:

1) **We'll do the printing:** Tell us which article(s) you want, and we'll do the rest. We will send you professionally printed reprints on white, 8½ × 11, 60-pound, book paper. Charges will be determined by the length of the article(s) and the quantity ordered. Allow approximately 2 weeks for delivery.
2) **We'll do the postcrap:** We will supply you with 8½ × 11, camera-ready photostats. Charges determined by length of article. Your printing company or your copier can use the photostat to make as many reprints as you like.
3) **Do-it-yourself:** Upon written request, we will give you written permission to reprint, and you do all the work. We only require that you use our standard credit line and send two copies of your printed version to the *InfoWorld* offices for verification and filing.

Every reprint request must include the issue date, page number(s), title and author. Contact: Terri Williams, *INFOWORLD* Reprints, 530 Lytton Avenue, Palo Alto, CA 94301, (415) 328-4602, or call toll-free (800) 227-8365 from outside California.



computers wholesale

No UPS Shipping Charges On Prepaid Orders Only!

—COMPUTERS—	
ALTOS List	Less 20%
NorthStar HORIZON HRZ-2-QD	$2885
NorthStar ADVANTAGE	$2895
TeleVideo Computer Systems	Call
SUPERBRAIN 64K Jr.	$1969
SUPERBRAIN 64K QD	$2349
SUPERBRAIN QSS 10 Meg. HD	$2895
CROMEMCO CS-0	$1035
CROMEMCO CS-1	$3195
CROMEMCO CS-2	$3649
CROMEMCO CS-3	$5599
CROMEMCO Z-2H	$7995
ZENITH 2.90 w/ Drive	$2299
ZENITH 2.89	$2099

—TERMINALS—	
TeleVideo 910C	$659
TeleVideo 912C	$669
TeleVideo 920C	$719
TeleVideo 925	$719
TeleVideo 950	$915
OKIDATA Microline 82A	$395
OKIDATA Microline 83A	$595
OKIDATA Microline 84 (Par. or Ser.)	Call
CITOH	Call for Price
SOROC IQ-130	$585
SOROC IQ-135	$715
SOROC IQ 140	$995
HAZELTINE 1420	$589
HAZELTINE 1500	$645
HAZELTINE 1510	$729
HAZELTINE Esprit	$429
HAZELTINE Esprit II	$515
ZENITH Z-19	$585

—PRINTERS—	
CENTRONICS 730-1 (Parallel)	$299
CENTRONICS 737-2 (RS232C)	$299
CENTRONICS 704-6 (RS232C)	$1519
CENTRONICS 704-11 (Parallel)	$1549
TI-810 Basic	$1299
TI-810 Full	$1549
TI-820 RO Basic	$1545
NEC-8023	$495
NEC-3510	$1515
NEC-7710 (RS232C)	$2295
QUME 9/45 Limited	$2099
QUME 9/45 Full	$2125
OKIBLO 630 RO	$2049
PRISM-80 Basic	$629
PRISM 132 w/COLOR	$1465
EPSON MX-80 w/Graphics	$425
EPSON MX-80FT w/Graphics	$510
EPSON MX-100 w/Graphics	$665

—DISK SYSTEMS—	
MORROW Discus 2D	$830
MORROW Dual Discus 2D	$1365
MORROW Discus 2 + 2	$1069
MORROW M10, 5 Meg. Hard Disk	$1949
MORROW M10, 10 Meg. Hard Disk	$2995
MORROW M26, 26 Meg Hard Disk	$3349
MORROW Decision I	$1329
Micro Decision w/2 Drives & Term.	$1715
CORVUS 5 Meg Hard Disk	$3995
CORVUS 10 Meg. Hard Disk	$3995
CORVUS 20 Meg. Hard Disk	$4795

We stock all HAYES & NOVATION modems.

315-472-3055

Box 91 Brewerton, N.Y. 13029

Advertised prices reflect a cash discount on prepaid orders only. Most items are in stock for immediate delivery in factory sealed cartons w/full factory warrantees. N.Y. residents add appropriate sales tax. Shipping is not included (unless otherwise stated). C.O.D. requires 25% deposit. All prices and offers may be changed or withdrawn without notice.

Computeroid™ $29.95
Printing Calculator
☐ APPLE® 48K with DOS 3.3 ☐ IBM PC with DOS 1.1

SAMPLE RUN — FEATURES

MONTHLY BUDGET RUN
****
INCOME FIRST
STORE 2045.67 STORE HUSBAND'S TAKE HOME
MEM* 1443.56 = AND WIFE'S
RECALL 3489.23 THIS IS THE TOTAL INCOME
****
NOW THE EXPENSES
HOUSEHOLD EXPENSES
875 + RENT
15 + GAS
45 + ELECTRICITY
22 + CABLE TV
10.83 + NEWSPAPER
40 + PHONE
425 + GROCERIES
25 + CONTENTS INSURANCE
50 + REPAIRS
SUBTOTAL 1507.83 S
TRANSPORTATION EXPENSES
192.45 + CAR-1
145.67 + CAR-2
175 + GASOLINE
75 + MAINTENANCE
145 + INSURANCE
SUBTOTAL 2241.95 S
ADDITIONAL ITEMS
250 + CLOTHING
100 + ENTERTAINMENT
130 + INCIDENTALS
TOTAL 2691.95 T ALL EXPENSES
MEM* 2691.95 = SUBTACT EXPENSES FROM INCOME
RECALL 797.28 SAVINGS EACH MONTH
*APPLE is a trademark of Apple Computer, Inc.

- 4-function printing calculator
- Free-form storage and recall
- Each entry can include
  - ✓ alphanumeric labels
  - ✓ memos
  - ✓ notations
- **Full-function memory:** Transfer numbers to and from memory, and perform calculations on memory, simply by using the "M" key.
- **Full chaining:** Calculator carries last-entered number, and last-used function key, from one line to the next.
- **Unique "Group Total":** Calculator can save the result of any designated portion of the calculation, to allow you to back out the effect of that portion
- **Display formatting:** You can change the number of decimal points displayed by using the decimal key (".").
- **Help key:** The Calculator is sold with a self-running demonstration program (MOVIE). While Calculating, pressing the ? key gives you a quick review of the functions.

JR & A
6379 Red Hill Road
Boulder, CO 80302
(800) 851-6066
In Colorado (303) 449-7587

VISA/MASTERCARD
Printing Calculator $29.95
Postage and Handling 3.00
Colorado Residents add sales tax

Available at participating ComputerLands and other fine computer stores.

Quasar

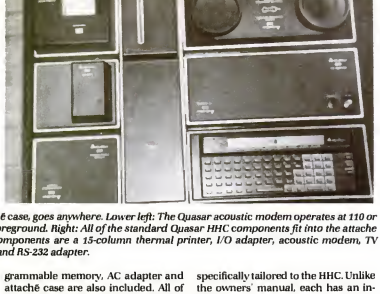
continued from preceding page

successfully transmitted text to the PC. Unfortunately, the incoming text was garbled "off by 16 bits," according to one *BV* staffer), and we were unable to correct it. Despite this, the RS-232C program appeared to be easy to use.

Word wrap is provided only in the Portawriter word-processing capsule to be released early next year. Portawriter includes a number of improvements over the regular file system, including search and replace, end-of-file/beginning-of-file cursor commands and an ingenious program to concatenate files to save space when they are not in use.

DOCUMENTATION: The Quasar manuals with our system came neatly tucked into a pocket in the lid of the attaché case. All are spiral-bound, 8-½ by 4-3/4-inch pages. All books are typeset and presented in a readable style.

The owners' manual for the HHC is 60 pages and includes the flip-out keyboard diagram mentioned earlier. The manual discusses the keyboard, display, I/O and capsules. Also, the manual includes a summary of editing commands by key function. One section, "When Things Go Wrong," did a fairly good job of handling all serious possible failures. The manual has no index but does include a four-page glossary of terms.



Upper left: The Quasar HHC, in its attaché case, goes anywhere. Lower left: The Quasar acoustic modem operates at 110 or 300 baud. Note the HHC plug-in bus in foreground. Right: All of the standard Quasar HHC components fit into the attache case. Clockwise, from upper left, the components are a 15-column thermal printer, I/O adapter, acoustic modem, TV adapter, HHC, programmable memory and RS-232 adapter.

The manual for the RS-232C unit, with wiring diagrams for communication between HHCs or connections to modems, follows the hardware descriptions. The modem manual follows, with an explanation of the Telecomputing 1 capsule included with the modem.

Next is the I/O adapter manual, and instructions for removing and adding peripherals or the HHC to the I/O adapter. Short manuals for the programmable memory, AC adapter and attaché case are also included. All of the manuals mentioned above are compiled in the same binding.

I found no misspellings or inaccuracies in the manuals, although in the description of the modem someone hand-deleted the phrase "to any telephone in the world" following the statement that the modem is your connection to the telephone system.

Also included with our review copy were two more manuals: a tutorial to Microsoft BASIC and a reference guide for Microsoft BASIC. Both of these are specifically tailored to the HHC. Unlike the owners' manual, each has an index.

SERVICEABILITY: The HHC and its peripherals come with a one-year warranty on all parts and labor. Quasar services the machines at ten locations around the country. There is no charge for walk-in warranty service, and Quasar pays return postage for air or ground shipment to the closest service center. Service contracts are available to OEM customers only.

The HHC system is highly modularized, and it is difficult for users to perform their own servicing. Capsules or peripherals are easily removed for servicing. Peripherals attach to a standard bus, so you can remove or rotate them without complication.

SETUP: Before using the HHC for the first time, you have to engage the rechargeable nickel-cadmium batteries, which are disconnected during storage and shipping.

You must locate the recessed switch, marked ALL-OFF, on the bot-

See Quasar, page 63

Now, one touch puts your files in order.

SIMPLIFILE™

See your files.
You can finally stop carrying your files in your head. SimpliFile will organize them, simply and beautifully. See the name of each file, its size, the date you last changed it, and your own description of its contents — all the data you need for making informed decisions — right on your CRT screen.

Issue one-touch commands.
No longer do you have to memorize and type tedious CP/M file commands. With SimpliFile you just point the cursor at the file of your choice and issue a one-letter command, such as Backup, Copy, Erase, Rename, View, etc. And you always know precisely where you are, because SimpliFile does what you tell it to do, then tells you what it did.

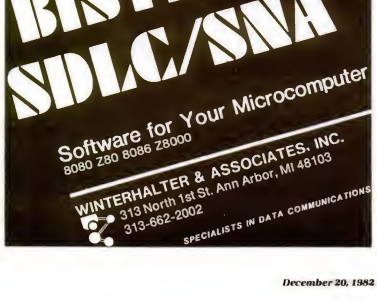
And there's more.
Tired of never knowing when your diskette is going to fill up? SimpliFile always tells you how much space is left on the diskette. Need to change diskettes or move to another drive? SimpliFile does it easily. Want to rearrange your file names? SimpliFile will sort them by name, type, or by size according to your need.

Revolution, pure and simple.
SimpliFile does more than simplify your life. It lets you enjoy your computer in ways you never thought possible. SimpliFile is available for $100 from Durant Software. To order, write or call us today.

See SimpliFile at Booth 3656 at COMDEX/FALL '82.

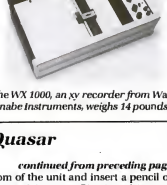
DURANT SOFTWARE
2532 Durant Avenue, Suite 250
Berkeley, CA 94704 (415) 540-0912

SimpliFile requires a 48K CP/M system. CP/M is a Registered Trademark of Digital Research



New peripherals

Watanabe Instruments has announced its new x,y recorder, called the **WX 1000**. The 14-pound printer is a single-pen plotter with a recording area of 10×7 inches. The price is $1175. Watanabe Instruments Corporation, 3186-D Airway Avenue, Costa Mesa, CA 92626.



The WX 1000, an xy recorder from Watanabe Instruments, weighs 14 pounds.

New systems

Convergent Technologies has announced the **AWS Turbo Color Graphics Workstation**. The new unit adds full-color graphics to the recently introduced AWS Turbo Workstation at only a modest increase in price, according to the company.

The unit offers OEMs the capability to turn digital and numeric data into color charts, graphs and pictures for business, scientific and engineering applications.

Each AWS Turbo Workstation consists of a 16-bit 8086 processor, an intelligent graphics board with a dedicated graphics processor, RAM, fully programmable keyboard and a 15-inch high-resolution video display.

The graphics display is organized as a combined graphics and alphanumeric system that lets users view any combination of text and graphics simultaneously. The board incorporates the new NEC 7220 graphics processor chip and 128K of display memory.

Pricing for the AWS Turbo Graphics Workstation, in single-unit quantities, ranges from $12,190 to $13,790 for a unit with a 16-megabyte disk. Convergent Technologies, 2500 Augustine Drive, Santa Clara, CA 95051.

HP 44538A standard test fixture

New tools

Hewlett-Packard is selling three new test fixtures that make it easy to test printed circuit boards of various sizes, up to 10.75×14.25 inches. The test fixtures include a vacuum chamber and a hinged test head that you can lock in the open position to check or change the wiring. Probes are guided to a tolerance of 0.015 inch (0.4 mm).

Software supplied with the HP 3060A board-test systems helps verify or troubleshoot the test fixtures.

The **HP 44538A standard fixture** costs $655; the **HP 44539A large fixture** costs $830; the **HP 44540A dual fixture** costs $985. An **HP44541A construction kit** to put the fixtures together with costs about $800. Call your local Hewlett-Packard sales office.

InfoWorld is unable to test every product announced in this section. All claims attributed to the products have been made by manufacturers or by firms marketing these items.

Quasar

continued from preceding page

tom of the unit and insert a pencil or screwdriver. By flipping this two-position switch from off to on, you activate the power system, as well as internal memory, the clock/controller date and the primary menu.

Any attached peripherals, such as the printer, which all draw their power from the HHC's bus, also become active at this time. The display remains blank until you press the ON key at the upper-right edge of the keyboard.

You are supposed to keep the ALL-OFF switch on unless you are storing the HHC for an extended period of time. In that case you should preserve the life of the batteries by flipping the switch to off. You can also use this maneuver as a troubleshooting tactic when all else fails.

If a BAT LOW message appears, you should plug the AC adapter into the jack on the side of the HHC, and full recharging takes place within 24 hours. While any charging is taking place, you should leave the AC adapter in a ventilated spot to avoid excess heat buildup.

The owners' manual competently covers these setup procedures. It recommends that you turn the HHC display off when you are connecting or disconnecting peripherals.

SUMMARY: Aside from our unsuccessful attempt to receive data from another computer, the HHC performed its tasks well. The printer and other components operated without failure, and I was impressed by the ease of use of the primary and secondary menus. The small keyboard remains the biggest problem of this machine, one that will not be easily solved.

The pricing of various components is not as aggressive as it could be, with competitors such as the Hewlett-Packard HP-75 on the HHC's heels. Despite this, the HHC is an impressive example of how technology can be compressed into a small space. Perhaps this is the prototype for more acceptable portable computers. ■

now
SOLOMON
Accounting Software is available for your Microcomputer

Solomon offers the most sophisticated accounting software system for microcomputers.

Easily set up, the remarkable Solomon software package operates from a single database managed by the MDBS™ database management system utilizing the industry standard operating system-CP/M.®

Solomon is faster, more powerful, more flexible, easier to install and easier to use than other systems.

The Solomon I System handles general ledger, payroll, accounts payable and receivable, invoicing, fixed assets, cash receipts and disbursements and address list maintenance.

The Solomon II System includes all these functions plus a job management package that can be used by engineers, architects, consultants, contractors and other service businesses.

Now you can have instant information for wise business decisions-with Solomon Series Software by TLB-from Computech.

MDBS is a registered trademark of Micro Data Base Systems, Inc
CP/M is a registered trademark of Digital Research

For information write or call (215) S·O·L·O·M·O·N or (215) 644-3344.

COMPUTECH
COMPUTECH GROUP INCORPORATED
Main Line Industrial Park
Lee Boulevard
Frazer, PA 19355

24160 Haggerty Road
Farmington Hills, MI 48024

We will train you in UNIX™ and the "C" Language

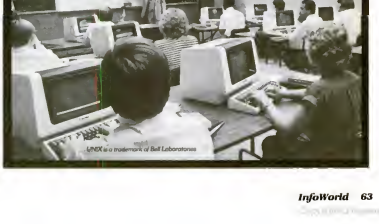
...And, back it with 50 years of technical experience.

The leader in on-line data information equipment and applications for over 50 years, Bunker Ramo now provides a training course which gives you:

- A one terminal/one user classroom environment
- Proven hands-on learning techniques
- Comprehensive textbooks
- Complete course documentation
- State-of-the-art instructional methods
- Special group registration rates

Current course offerings include:
- Introduction to the UNIX environment (5 days)
- Introduction to "C" programming language (5 days)
- Advanced UNIX methods (5 days)
- Advanced "C" methods (5 days)

For a detailed prospectus, call or write:
Bunker Ramo Information Systems
Training Services Group
35 Nutmeg Drive
Trumbull, CT 06609
(203) 386-2600



Positions Available

PROGRAMMERS

Needed to write programs for applications in education and training. Challenging opportunities exist for those who can design and develop interactive programs for general users. Experience writing programs in BASIC essential, especially for Apple II Plus or TRS-80 Model III microcomputers. Knowledge of computer graphics helpful. We are looking for careful, accurate programmers who enjoy working under deadline pressure. Both full-time and consultant opportunities available, with some flexibility of hours. Send brief letter of application, resume, descriptions or samples of programs, and salary history to:

Director of Personnel (82341)
National Evaluation Systems
P.O. Box 226
Amherst, MA 01004

An EOE

List in Positions Available!

Positions Available

SOFTWARE SPECIALISTS TO 45K

UNIX Systems Programmer
Micro Applications - "C"
Communications Software (Async)
Screen Management
Database Utilities

This is a partial list of client requirements in the San Francisco Bay Area. We specialize in mini/micro/communications software specialists. For further information write or call collect:

Rick Decker
EXECUTIVE DIRECTION
969 Pine Street, Suite 200
San Francisco, CA 94104
(415) 956-5784

Positions Available

VIDEO GAME DESIGN

Software/Hardware/Technicians
Join Fortune 5 Company, leader in entertainment. Ground floor opportunity new product development. Excellent $$$ DOE. Comprehensive benefits, & relo package.

GAME DESIGNER
Develop video games, conceive/translate original ideas.

VIDEO GAME ENGINEER
Develop hardware for video games, communication system and hardware peripheral.

ELECTRONIC TECHNICIAN/ Video Games
Wire and test prototype circuits. Aid programmers and engineers with video games development.

THE BEST PEOPLE
(203) 348-5919
1788 Bedford St.
Stamford, CT 06905

Positions Available

IDS — a name you'll remember. Five years old and already a rising star in computer peripherals. The introduction of our IDSM PRINTER™, a modular dot matrix printer, has already begun to redefine standards for the color graphics industry.

We have the backing, the technical resources and the distribution capabilities to fully capitalize on the strengths of our product line. Poised on a new era of growth and success, we're looking for professionals who can contribute to that success. We'll provide both the challenge and the support necessary to bring out your best. And the rewards you receive will reflect your high-level contributions.

SALES MANAGER
Western Region

As a high-caliber sales pro based in the greater Los Angeles area, you will be responsible for direct sales, and for managing our regional sales force. This will involve generating sales for distributors and computer retailers, as well as providing sales training and education for sales reps and customers. You will also be responsible for creating new accounts in order to build a solid dealer/distributor base. This will include implementing marketing programs, and utilizing forecasting tools to predict, coordinate and expedite pre- and post-sales activities.

To qualify, you should have 2 years' personal computer sales experience, word processing or graphic sales experience (retail computer preferred), plus 3 years in sales/management. Excellent communication skills and technical competency a must.

To explore this opportunity, please forward your resume to Michael Jacobi, Personnel Department.

Integral Data Systems, Inc.
Route 13, Milford, New Hampshire 03055
An Equal Opportunity Employer M/F

ATARI®

THE FUTURE IS HERE.

Make It Yours At Atari.

In 1972, we started a revolution with Pong™, the first popular electronic video arcade game. In the decade since, Atari's Coin-Operated Games Division has remained a leader in this growing, exciting field. Our growth has created new career opportunities for talented, dedicated technical professionals with an innovative flair.

Staff Engineer

Put together test plans and procedures for all phases of evaluation. Requires BSEE, 10 years' experience plus knowledge of switching power supplies and/or color and B/W monitors. Component/reliability experience in relation to video systems power supplies also necessary.

Electronic Engineering Supervisor

Supervise a group of hardware engineers in the development of new video game products. Must have BSEE and 8+ years' experience with 1-2 years in supervision. Strong background in microprocessor system design necessary.

Senior Electronic Design Engineers

Design microprocessor based electronic circuitry to be used in coin-operated games. See design through to production. Requires BSEE, and minimum 3-5 years' experience with digital logic, specifically microprocessor based designs.

CAD Supervisor

Perform VAX system management plus provide CAD software support. You'll also have responsibility for maintenance and general computer applications. Requires BSCS, or equivalent, and 4 years' DEC systems background, or equivalent, including 1 year of supervisory experience. CAD systems experience desirable.

The world of tomorrow is taking shape at Atari today. Be part of it now. Send your resume, with salary history, to Human Resources, Dept. CEW2, ATARI, INC., 1501 McCarthy Blvd., Milpitas, CA 95035. We are an equal opportunity employer, m/f/h/v.

ATARI®

A Warner Communications Company

DISCOVER HOW FAR YOU CAN GO.

TECHNICAL DIRECTOR

Osborne/McGraw-Hill, leading publishers of microcomputer books, is seeking a highly competent individual to head its Technical Group. The Technical Group responsibilities include:

—Quality of the technical contents of all products
—Reviews new product proposals
—Assists authors in developing their work
—Advises acquisitions editors and marketing personnel in microcomputer developments
—Maintains and supports the company's personal computers

Qualifications required include:

—Strong experience in the use of microcomputer hardware and software
—Book publishing experience, either in production, editing or acquisitions
—At least one year's experience supervising editors

Please send resume and salary history to:

OSBORNE
A McGraw-Hill Company

630 Bancroft Way
Berkeley, CA 94710
Attn: Personnel Coordinator

EOE M/F/H

Management Recruiters/ Silicon Valley

Specialized office, nation's largest firm. Hardware, software, CAD, robotics, development, MIS, etc. Engineers, Programmers, Managers. 1040 Marsh Rd., Ste. B240-E Menlo Park, CA 94025 (415) 328-8024.

LEAD PROGRAMMERS

Needed to design and oversee execution of microcomputer programs for applications in education and training. The Lead Programmer serves as technical liaison with instructional designers, and supervises programmers in the creation of highly interactive programs for general users. The Lead Programmer establishes and maintains quality control procedures, including testing and de-bugging, writes programs for more sophisticated applications, and communicates technical information to clients. Experience writing practical programs in BASIC, especially for use on Apple II Plus and TRS 80 Model III hardware, is essential. Knowledge of computer graphics or video is helpful. Interpersonal and supervisory skills required. We offer full-time positions of considerable responsibility to persons who enjoy responding to varied challenges creatively under pressure of deadlines. If you are interested, send a letter of application, resume, descriptions or samples of relevant programs, and salary history to:

Director of Personnel (82391)
National Evaluation Systems, Inc.
P.O. Box 226
Amherst, MA 01004
An EOE

Consultants

CONSULTANT

For system design and custom programming in dBASE II. Based on your needs, will provide full support. Call Gilbert Abonneau:

(213) 460-4821

dBASE II

Anyone interested in user groups, teaching seminars, marketing dBASE II applications, please write:

InfoWorld
Box 47-Con-01
530 Lytton Ave., Ste 303
Palo Alto, CA 94301

Software

IBM PERSONAL COMPUTER USERS!

Introducing **COPY/PC**

A NEW copy utility that

- allows you to make backup copies of many protected programs including Visicalc* and Easywriter*!
- recovers usable data from partially damaged discs!
- is fast and easy to use!

$34.95 CA residents add 6½% sales tax

Send check or money order to:

NAGY SYSTEMS
4411 Geary Blvd
Suite 231
San Francisco, CA 94118

*Visicalc and Easywriter are trademarks of Personal Software and I.S., respectively

Software

SOFTWARE PROFESSIONALS-SOFTLAB WILL:

- —COPY FILES up to 8 megobytes to multiple floppy disks
- —SERIALIZE ony program in up to 3 locations
- —VERIFY copies byte-for-byte
- —PRINT a record of production

ALL FOR $99

Requires 56K CP/M
From: M.B.A.C
10221 Slater, 103
Fountain Valley
Calif. 92708
714 540-4340

Software

IBM-PC PRO FOOTBALL GAME

--only $18.75 for a limited time! Requires 64K and an 80-column display. Color/graphics optional

STRATEGIC ALTERNATIVES
IBM Game Dept.
456 Homer, Suite 2
Palo Alto, CA 94301

DISCOUNT SOFTWARE PRODUCTS

Over 500 Vendors & 3000 Products

* IBM PC* SPECIAL *

PERSONAL FINANCE PROGRAM $71.00 By Best Programs* eliminate the drudgery of personal finances FREE CATALOGS (214) 631-5998 or (800) 547-5995 CRC 9730 King George Dr. Ste. 115, Dallas TX 75235

FREE IBM PC INFORMATION

on "Choosing Color Monitors" and on RGB color cables, graphics software

CUSTOM CABLES TO INTERFACE PC for Sony Profeel & NEC 1202. Graphics/graphics-printer programs. Transfile Apple/TRS80 to IBM PC w/cable. Complete line of PC software incl. WP, DBMS, spread sheets, acctg. Featuring **stocks, commodities**, stics. **Hardware for PC**—cables,printers,drives, mem. boards

J. I. STRICK & ASSOCIATES
949 S. Southlake Dr., Hollywood, FL 33019
Tel. 305-925-7004

OSBORNE 1™ - Epson™ w/GRAFTRAX™

Access & print GRAPHICS; quick & easy with GSE. Potent editing features -- mix text & graphics -- save & redisplay -- build MBASIC subroutines or animated displays, too! SASE for details, or order today.

GSE -- ONLY $49.95

PHILLIPS SOFTWARE, Box 1495,
Arlington Heights, IL 60006

Software

MICRO FLASH

Best Prices — Service in a Flash

APPLE II SOFTWARE	Retail	MICRO FLASH
Applied Software Technology VersaForm	$389 00	$291 95
Ashton Tate dBase II	700 00	485 95
BPI Systems Accounting ea	395 00	316 95
Continental Home Accountant	74 95	51 95
Continental CPA Modules ea	249 95	174 95
Continental Property Management	495 00	345 95
Continental 1st Class Mail	74 95	51 95
IUS EasyWriter Professional	175 00	122 95
IUS EasyMailer Professional	150 00	81 95
Lightning Hi-Res Master Type	39 95	28 95
LJK Letter Perfect	149 95	104 95
Microsoft Multiplan	275 00	214 95
Microsoft Basic Compiler	395 00	307 95
Microsoft Cobol Compiler	750 00	584 95
Peachtree Series 40 Accounting ea	400 00	279 95
Sensible Back It Up II	59 95	41 95
Sensible Speller	125 00	87 95
Sierra On Line ScreenWriter II	129 95	89 95
Software Publishing PFS	125 00	87 95
SDS Ascii Express Pro	129 95	94 95
Stellation Two The Mill	369 00	298 95
Stoneware DB Master	229 00	159 95
Stoneware Utility Pak #1 or #2	99 00	68 95
Systems Plus GL/AR/AP	995 00	646 95
Visicorp Visicalc	250 00	174 95
Visicorp Visischedule	300 00	209 95

* MOST GAMES AT 30% OFF RETAIL! *

HARDWARE & PERIPHERALS		
East Side Software Wildcard	129 95	109 95
Hayes Micromodem II	379 00	279 95
Hayes Smartmodem 1200	699 00	552 95
Kensington System Saver	89 95	77 95
Microsoft Softcard	395 00	249 95
Microsoft 16K Ramcard	195 00	119 95
New Microsoft Premium System	685 00	468 95
Mountain CPS Multifunction Card	239 00	189 95
Mountain Expansion Chassis	750 00	637 95
Practical Peripherals Micro Buffer II (32K)	299 00	238 95
Prometheus Versacard	199 00	164 95
Rana Systems Elite One Disk Drive	449 00	367 95
SSM AIO II Interface	225 00	168 95
Videx Videoterm	345 00	225 95
Videx Visicalc 80 Column & Memory Expansion	99 00	71 95
Videx Applewriter II 80 Column	19 00	15 95
Videx Keyboard Enhancer II	149 00	104 95
Videx Function Strip	79 00	62 95
3M Scotch Diskettes—Box/10	42 00	26 95

MANY OTHER PRODUCTS AVAILABLE!

All products are Factory Fresh and GUARANTEED!

Service before the sale! Support after!

Please send certified or cashier's check to

MICRO FLASH
120 Village Square, Suite 126
Orinda, CA 94563

OR CALL
(415) 680-1157
HOURS 8 A M to 8 P M

NO CREDIT CARD SURCHARGE!

Only $4.00 shipping/handling and insurance per order
Higher for printers & monitors—please call
CA residents add applicable sales tax
Items & prices subject to change
Dealer inquiries welcomed

Software

Morrow Designs

MICRO DECISION ACCOUNTING SOFTWARE

For only $289 get a complete accounting system

General Ledger-detailed reports for company and departments comparative financial statements (month, YTD, previous year)

Accounts Receivable - instant customer account information (current and aged), with complete invoicing including open item and statement capabilities

Accounts Payable - current and aged payables, complete vendor/voucher history, check writing, cash flow management reports.

Payroll - all types of employees. Multiple statements, user modifiable tax tables, W-2 and 941 printing (month, quarter and YTD totals)

Includes **source code**, sample data and user manuals (540 pg). CA residents add 6½% tax. End users only. System requires 56k, 2 disk drives, CP/M, Microsoft Basic and 132 column printer (compressed mode OK). Individual modules available for $109 each

ROCKY MOUNTAIN SOFTWARE SYSTEMS
1280-C NEWELL AVE., SUITE 147 • WALNUT CREEK, CA 94596
(415) 625-1592
MICROCOMPUTER SOFTWARE AND SYSTEMS

SOFTWARE GALORE

"DISCOUNTS"

APPLE - IBM - CP/M FRANKLIN ACE 1000

Call Us and See If We Can't Beat *ANY* Advertised Price

Your Headquarters for Complete Systems

All Hardware on Special This Month

* * * * * * * * SOFTWARE * * * * * * * *	List Price	Sale Price
Ashton-Tate d Base II	700.00	409.00
Accounting Plus	1,395.00	985.00
Asset Manager	200.00	149.00
Data Factory 5.0	300.00	219.00
Data Manager (Apple ///)	700.00	595 00
O & Master	229.00	159.00
Format II	250.00	165.00
Function Strip	79.00	59.95
Home Accountant IBM/PC	150.00	89.00
Invoice Factory	200.00	149.00
List Handler	89.00	64.00
Microsoft Multi Plan	275.00	199.00
Payroll Manager	300.00	219.00
Super Text 40/50/70	125.00	99.00
Versa Form	389.00	275.00
Visicalc	250.00	169.00
Visitrend/Plot	300.00	189.00
Wall Streeter	300.00	219.00
Word Handler	199.95	129.00
Wordstar w/Mail Merge	375.00	299.00
* * * * * * * * HARDWARE * * * * * * * *		
Apple Dumpling 16K	249.00	159.00
128K w/Visi Expand	479.00	325.00
Brother Printer	1,150.00	929.00
Corona Hard Disk 5MB	2,249.00	2,195.00
Datawriter Printer	1,385.00	1,235.00
DC Hayes Micromodem II	379.00	259.00
Franklin Ace 1000	1,450	995.00
Kensington System Saver Fan	89 00	89.00
Magnum 80 Column	269.00	175.00
Microsoft PC 256K Ram	915 00	598.00
Microsoft Ramcard	195.00	99.00
Microsoft Softcard	399.00	215.00
Micro Sci A35 Floppy Drive	479.00	329.00
Microtek 16K Ramcard	149.00	75.00
Microtek 265K PC	850.00	590.00
NEC 3530 Printer	2,290.00	1,735.00
NEC 8023 Printer	795.00	460.00
NEC Hi-Res Green Screen	149.00	135.00
Q Disk	529.00	350.00
Rana Disk Drive	335.00	325.00
Videx Videoterm w/Softwitch	385.00	239.00

* * * * * * * * * SPECIAL * * * * * * * * *

Microsoft Premium Pack — Softcard, Ramcard Videoterm, w/Softswitch, Inverse Chip & CP/M Users Guide — List $1,005.00 Sale $429.00

WAREHOUSE HOURS
8:30 - 5:30 PST Monday - Saturday
4079 Glencoe Ave., Marina del Rey, CA 90291

213-827-1851 Technical Support
800-423-6326 . . . . . Orders

A Membership Buying Service

TERMS: 2% on M/C or VISA, no C.O.D.'s, Calif. add 5.5% tax; add $1.50 handling, $2.35 freight. Price subject to change without notice. I-13

SMALL-C

Compiler for the IBM Personal Computer

$35

- Includes Compiler Source in Small-C
- Produces Linkable Source Output
- Requires IBM-PC ASM and LINK

Caprock Systems, Inc.
P O Box 13814
Arlington, Texas 76013
(817) 261-4493

Mastercard and Visa accepted
IBM is a registered trademark of the IBM Corporation

SYSTEM/Z'S BASIC/Z

A New COMPILED Basic for CP/M or MDOS

- No Royalties. No Run-time Charges
- Generates machine code (8080, Z80)
- Sort Verb - 2000 elements in 2 seconds
- Alpha-numeric Labels
- Chain with Common
- BCD Floating Point Math to 18 Digits
- Editor Tests Syntax As You Type
- Recursive Multi-line User Functions
- Dynamically Dimension Arrays
- Selectively Erase Arrays
- Trace and Single step Debugging
- Multi tiered Error Trapping
- Cursor Addressing, Reverse and Blinking Video

want to see how it works?
Get DAMAN's Mail List program for $30. BASIC/Z run time packages are included.

Just want further info?
Call or write for free BASIC/Z brochure and mini-manual

BASIC/Z lists for $345. But from DAMAN it's $312 Post Paid to North America
VISA and Master Card Accepted. COD available or $298 with cash discount (cash, check, money order)
Add $7 for airmail shipment outside N. America
Specify 8" Micropolis, Vector Graphic, Apple, Osborne, NEC, N Star
Full BASIC/Z Documentation $35 (credited to full order)

Suite 14-05
3322 Mem
Parkway S.W.

daman

(205) 883-8113
Huntsville
Alabama 35801

The *Ultimate* For dBASE II Users

dNAMES®

DOCTORS — REALTORS — CONTRACTORS — DENTISTS
LAWYERS — MAIL ORDER — SERVICE COMPANIES — CONSULTANTS

If you deal with people, these are features that make dNAMES* invaluable.

- Totally menu driven error checking, taking full advantage of the power of dBASE II (2.36)
- Pick from up to 40 user supplied classification names (WE THINK YOU'LL BE IMPRESSED.)
- Option of 5 report formats: single column or 3 across AVERY 33 labels, single line, 2-6 lines or MAILMERGE™ data file. These are based on your choice of classifications, data range, zip range, letter range and/or sorted on your choice of fields in seconds
- Transfer old or unused records to Archive back-up disk
- The most sophisticated edit program available for dBASE II. No more searching for individual records to edit. Display for instant editing only records that fall within your choice of ranges.
- Automatically checks file first to see if that record name is already on file. If so it displays all current information (including date entered and last update) from up to three different files. At which point you can skip, edit, add a record, delete or recall, mark for future transfer, check for other similar names or even address an envelope
- Fast find a record by name or phone number instantly
- Keep track of name, salutation, add, city, state, zip, phone, 6 different classifications, entry date and last update, and up to 4 lines of comments, all dispersed into 3 files for speed and efficiency
- Although the uses for this program are endless, source code is included providing a base for limitless additional customizing

only $129.00

Aston-Tate	dBASE II	$469 00
Fox-Geller	QUICKCODE	219 00
	dUTIL	65 00
Dan Covill & Assoc	DBHELP (on line help)	20 00

Simple Software PACMAX, CUTOFF, NYSE, SNAKES
4 addicting CPM™ GAMES for the price of 1
only $39.00

We also handle an extensive line of hardware, software, and peripherals. Call us last before ordering and see if we can't beat your best price. For example

Hayes SMARTMODEM	$ 209 00	ALTOS 5-15	2 295 00
QUADBOARD	399 95	Televideo TS-802	2 595 00
EPSON MX80 F/T	475 00	C ITOH Prowriter	449 85

CALL OR SEND FOR YOUR FREE COPY OF dTIPS

PAYMENT — Cashiers Ck/M O /Bank transfers
California residents add 6% tax • Allow 2-3 weeks for personal checks
• MASTERCARD/VISA ACCEPTED

DATA BASED SOLUTIONS
P O Box 8797 San Diego, CA 92109

TECHNICAL HOTLINE
619-272-5556
CONSULTATIONS AVAILABLE

ORDER DESK ONLY
619-272-5874

CP/M-ATARI CONNECTION

Now you can buy an inexpensive ATARI-400, (for your children of course), and have it use the disk drives, printer, and keyboard on your CP/M computer. For $147 you get assembled and tested cables, interface, power supply, and software. Introductory price good through Dec 1. After Dec 1 you pay $175. Free brochure available. Call (408) 997-0284 or write

Vincent Cate
USS Enterprises
6708 Landerwood Ln
San Jose, CA 95120

See our review in the July 26th issue, page 26

COLORTEXT

unlocks the power of the

PRISM

printer from IDS. Access 8 COLORS, 6 type sizes, justified proportional type and many more features (52 commands) to create dazzling color documents WITHOUT PROGRAMMING. CP/M, IBM PC $149.00 (Dealer inquires invited)

Jupiter Island Corporation
1900 Powell St., Suite 1135
Emeryville, CA 94608
(415) 655-0840

When You Want To Be First,

Every Second Counts

CompuPro

SYSTEMS!

SYSTEM 816A . . .	$5,495.00
SYSTEM 816B . . .	$6,995.00
SYSTEM 816C . . .	$8,995.00

CALL OR WRITE FOR SPECIFICATIONS

COMPONENTS!

DISK 1	$352.00
RAM 16	$449.00
DBASE 2	$465.00

WRITE OR CALL FOR PRICE LIST

COMPUTER HOUSE
501 "B" ST.
SAN RAFAEL
CA 94901
(415) 453-0865

FREE CATALOG
IBM PC SOFTWARE

Over 80 Programs < $4.00 Each

Send for free catalog listing IPCO's member-written programs available for under $4.00 each plus a $6.00 charge for the disk, shipping and handling. All categories of programs available, some more than 20,000 bytes.

International PC Owners, Inc.
ATTN: Free Catalog
P.O. Box 10426
Pittsburgh, PA 15234

Software

DI$COUNT
APPLE® BUSINE$$
•SOFTWARE•HARDWARE•
•NOW IN OUR 3RD YEAR•

•DI$COUNTS TO 60%•
•800+ PROGRAMS—CALL•

ACCOUNTING SOFTWARE	LIST	COST
•Peachtree Series 40* G/L-A/R A/P-INV-Payroll (Ea)	$400	$239
•B.P.I. G/L-A/R-Payroll (Ea)	395	279
Time Accounting	395	279
•Systems + /S.W. Dim. Actg. + II G/L-A/R-A/P-Inventory (Ea)	395	239
ALL Four Modules	1250	669
•Continental Software G/L-A/R-A/P-Payroll (Ea)	250	154
ALL Four Modules	1000	609
COMMUNICATIONS SOFTWARE		
•SW Data Z-Term Professional*	150	99
ASCII Express Pro	130	89
•SE Software Data Capture 4.0	65	45
DATA BASE/FINANCIAL MOD.		
•Microsoft Multi Plan*	275	169
•Stoneware DB Master	229	145
Utility Paks (Ea)	99	62
•Visicorp Visicalc	250	195
•Ashton-Tate dBASE II (Full ver.)*	700	399
•Fox/Geller dUTIL*	99	59
Quickcode*	295	199
dGRAPH*	295	195
•DATA BASE PACKAGE SPECIAL* dBASE II (Full ver.) + Quickcode	995	569
•Sorcim Supercalc*	295	179
•Micropro Calcstar*	145	95
•Software Publishing PFS (New)	125	79
•Perfect S/W Perfect Filer*	595	229
Perfect Calc*	295	119
SPECIALIZED SOFTWARE		
•HowardSoft R.E. Analyzer II	195	125
Tax Preparer	150	99
•Applied Software Versa Form	389	245
UTILITY SOFTWARE		
•Nibbles-Away II (Copy pgm)	70	55
•Sensible Super Disk Copy III	30	22
•Microsoft TASC Compiler	175	119
WORDPROCESSING SOFTWARE		
•Perfect S/W Perfect Writer*	495	169
Perfect Speller*	295	109
Both Above-Pkg.	790	269
•Sierra On-Line Screenwriter II	130	79
•Kensington Format II	250	155
•Artsci Magic Window II (40/80)	150	99
•SofSys Executive Secretary	250	169
•Muse Supertext 40/56/70	125	79
•LJK Letterperfect	150	99
HARDWARE SPECIALS		
•Personal Computer Prod. APPLI-CARD (6MHz)• •Features: Z-80 • /CP/M • 16K RAM • 70 col. video• •INTRODUCTORY SPECIAL $409-SAVE $186•		
•Microsoft Softcard	345	225
16K RAMCARD	195	69
•Videx Videoterm w/Soft-Switch	380	238
Keyboard Enhancer II	149	99
•Kensington SYSTEM SAVER Fan	90	65
•D.C. Hayes Micromodem II	379	259
Smartmodem 300	289	209
1200	699	509
•Micro-Sci A2 35T Disk Drive	395	299
•Rana Elite I 40T Disk Drive	449	325
•N.E.C. 12" Green Hi-Res CRT	285	169

CP/M® HARDWARE $PECIAL
•Microsoft Softcard + 16K RAMCARD•
•Videx Videoterm 80 col. Card•
•Videx Softswitch & Inv. Char. Set•
•Osborne CP/M Users Guide•
THIRD ANNIVERSARY DISCOUNT SPECIAL
PACKAGE COMBO $449•SAVE 57%

•ORDER DESK•
TO ORDER (7:30AM-4PM M-F)—CALL...
•(213) 823-0767•
WE PAY FOR YOUR CALL!
PHONE ORDERS OVER $200 DEDUCT $3
•NOTICE. WE WILL CLOSE 12/23-1/3•
••SEASONS GREETINGS••
•TECHNICAL HOTLINE: (213) 410-1986•
•7:30-9AM M-F•Consultation available•

TERMS: All prices MAIL-ORDER ONLY—subject to change w/o notice-Some items in limited supply/subject to stock availability.
PAYMENT: Cashier's Ck/Mo- Bank Transfers accepted · Allow 20 days for personal checks · CA Residents. Add 6% Tax (LA 6½%) · No COD or Terms · C.W.O. only
SHIPPING: UNDER $500-Add: $5 UPS Surface
Over $500-FREE UPS SURFACE!
Postal/Foreign-Add $25 + Postage
MASTERCARD/VISA: Add 2% (Min. chg. $200)
PGM requires CP/M (Softcard)

* CP/M·Trademark of Digital Research
* Apple·Trademark of Apple Inc. IW49A

•FREDERICK E. DEEG•
and Associates
13234-A FIJI WAY
MARINA DEL REY, CA 90291

Create Edit and Save color images!
PCSKETCH
IBM PC COLOR IMAGE EDITOR
For displays, animation, games & typefonts
SIMPLE SINGLE KEY COMMANDS:
- DRAW with a shapable color brush
- ZOOM for easy pixel by pixel edit
- CIRCLE, BOX, LINE, PAINT, RECOLOR
- EXPAND, CONTRACT, ROTATE, MIRROR
- Add TEXT to images in compact font
- BSAVE image to GET & edit later or to BLOAD into other programs

Creates BASIC statements that will reproduce image in any program

If you want color displays in your BASIC program
YOU NEED PCSKETCH!
$29.95
You just pay a handling charge for updates!
AMALGAMATED COMPUTER WORKS
BOX 9707, BERKELEY, CA

Software

ici

Palantir™
Word Processing — what WordStar® should have been!
"Our Personal Favorite"
WordStar® Micro Intl   Palantir™ Palantir Inc

Palantir™ Word Processor	only $430
Grammatik	$ 75.00
Random House Proofreader	$ 50.00
Random House Electronic Thesaurus	$125.00
University of Chicago Manual of Style	$125.00

*available for IBM PC   **available for CP/M 86

Accounting

Cyma	ea. $590
*Open Systems	ea $630
Palantir	ea $664
**SSG	ea $450
FIRM I	$1650
**STAR SYSTEMS	ea $380
Systems Plus	$420

Communications

*Crosstalk	$140
Remote	$110
Lync	$110
Term II™	$144

Data Base Managers

*Condor I	$213
Milestone	$245
**Milestone	$332
**Selector IV	$215
Selector V	$355

Miscellaneous

ATI Power CPM	$ 75
dPATCH	$155
**Diagnostics II™	$ 90
Disk Doctor™	$ 75
EM 80/86	$150
*MatheMagic	$ 72
MicroStat	$250
NW StatPak	$355
SmartKey	$ 60
SuperVyz	$ 50
System Checker™	$ 55
Utilities Pak™	$ 45

Worksheets

MicroPlan	$348
**Plan 80	$415
Planner Calc	$ 75
ScratchPad™	$212
*SuperCalc	$195

Languages

ADA™	$215
Basic-80	$252
CB-80	$419
CBasic II	$ 98
CP +	$125
Forth™	$145
Fortran™	$252
PL/1-80	$420
Unica	$ 90

Tax

CPAids	$1350
MICROTAX SPECIAL	
Demo (actual 1981 level II program)	$ 60
* MicroTax	$195
* MicroTax II	$875
* MicroTax III (state modules available)	$575
ShortTax	$350

(503)678-2778
23022 Yeary Lane N.E. • P.O. Box 225 • Aurora, Oregon 97002

ici is here.

OSBORNE 1®
•Small business and utility programs
•User friendly, menu driven, low cost
•None over $89.00 complete! • Write or phone for listing and descriptions.
M.A.P.I., 173 Birch Ave.,
Cayucos, CA 93430 (805)995-2329
(Visa, M/C & Amer. Ex. accepted)

REMOTE ACCESS
for the IBM PC
Call your computer from a remote location and use it as if you were sitting in front of it. Develop and run programs, transfer files, etc. Many extra features—$50 postpaid.
CUSTOM SOFTWARE
P.O. Box 1005
Bedford, TX 76021
For VISA/MC orders - (817) 282-7553

InfoWorld's Classifieds speak your language.

IBM PC SOFTWARE PROTECTION
SOFLOK protects your valuable software from unauthorized copying.
Only $150

SOFTWARE

PC/InterComm	$79
Apple Panic	$26
Volkswriter	$149
Mince	$159
Edix	$189

UPS $3, COD $3, CA residents add 6%

Olive Branch Software
1715 Olive Street
Santa Barbara, CA 93101
(805) 962-4682

CLASSIFIED INFORMATION

Please run my ad in your next issue and________ times thereafter.

Cost: *InfoWorld* Classified Advertising starts from only $40 per column inch. 1-inch minimum for standard listing. 10 lines per inch, using 35 characters per line, including spaces and punctuation. Send your payment with ad, and a letter of confirmation.

Discounts: You will receive a discount if you run your ad 6 times or more. You may change your ad anytime. Ask about our discount offer and rate protection.

Copy: We'll typeset simple ads at no extra charge. Type or neatly print your message using upper/lower case.

SECTION: ____________________
SIGNATURE: ____________________
NAME: ____________________
COMPANY: ____________________
TITLE: ____________________
ADDRESS: ____________________
TELEPHONE: ____________________

Send this form to:

CLASSIFIED ADVERTISING, INFOWORLD
530 Lytton Ave., Palo Alto, CA 94301

Ad closing is every Friday 10 days prior to issue date.

To reserve space for your ad, or if you'd like more information on classified advertising in InfoWorld, call (415) 328-4602. Outside CA (800) 227-8365.

Software

dBASE II®
BUSINE$$ APPLICATION SOFTWARE
•NOW IN OUR 3RD YEAR•

THE DI$COUNT BUSINE$$ SOFTWARE SPECIALISTS NOW OFFER YOU AFFORDABLE BUSINE$$ APPLICATION SOFTWARE

•CASH ACCOUNTING• SYSTEM

Ideal for small Business or personal use where full double entry bookkeeping is not necessary. Extensively field tested in typical business situations.

FEATURES . . .
- Automatic check numbering with last check no., data, and current balance maintained in file
- Payee and Account Macros for rapid data entry of repetitive items
- Income and expenses can be allocated over multiple accounts
- Provision for cash transactions
- Monthly and Year-to-Date Income Reports (P & L) with ratio analysis and net change in cash
- Produces monthly check register report
- Maintains checkbook balance
- Partial month income report available at any time during the current month
- Entirely menu diven
- Automatic set-up/install can be done without any programming knowledge
- Can be customized to suit individual applications
- Requires dBASE II (2.3B up)

INTRODUCTORY • SPECIAL $99 •

PACKAGE $PECIAL
• dBASE II + CASH ACTG. •
• $495 •
FORMATS: APPLE II · 8"SD
IBM PC-TELEVIDEO
MORE FORMATS COMING SOON-CALL!

COMING SOON
• INVOICING SYSTEM •
• INVENTORY CONTROL •

• ORDER DESK •
(7:30 A.M. - 4 P.M. PAC. TIME M-F)
•CALL: (213) 823-0767•
•TECHNICAL HOTLINE: (213) 410-1986•
(7:30-9A.M. M-F-Consultation Available)

TERMS: All prices MAIL-ORDER ONLY - subject to change without notice.
PAYMENT: Cashiers CK/MO-Personal Checks allow up to 20 days-No COD or Terms-C.W.O. only. CA: Add 6% tax (LA: 6½%)
SHIPPING: Add: $3 UPS surface/$6 Blue Label (Postal/Foreign-Add $25 Postage)
• MASTERCARD / VISA •
* dBASEII-TM of Ashton Tate IW49

•FREDERICK E. DEEG•
and Associates
13234-A FIJI WAY
MARINA DEL REY, CA 90291

ARABIC WORD PROCESSOR SOFTWARE WANTED by OEM

for use in our product. Prefer existing program for micro-computer system. Please write giving general description/history of use to:

InfoWorld
530 Lytton Ave., Ste. 303
P.O. Box 50-S-03
Palo Alto, CA 94301
50-S-03

Software

SOFTWARE UP TO 50% OFF

APPLE II BUSINESS	List	Now
Continental		
Home Accountant	75	52
• Property Management	495	352
Decision Software		
• The Accountant	129	97
• Accountant with DBCalc	149	107
Lightning Software		
Mastertype	40	30
Micropro Wordstar	375	179
• Datastar	495	149
• Spellstar	250	108
OnLine Screenwriter II (Superscribe II)	130	85
Software Pub PFS (New)	125	79
• PFS/Report (New)	95	66
Stoneware DBMaster	229	145
• Utility Pak (#1 or #2)	99	62
Systems Plus (S/W Dimensions)		
Accounting Plus		
• GL, AR, AP, Inv each	425	285
• All four	1395	795
IBM PC		
DataMost Write On	130	94
Denver Software		
• EASy (Executive Acctg System)	725	539
MicroPro Wordstar	495	242
• Mailmerge	250	127
• Wordstar/Mailmerge	645	310
Continental		
Home Accountant Plus	150	112
Mark of the Unicorn Mince	175	153
• Final Word	300	223
MicroStuf CrossTalk	195	119
Sorcim SuperCalc	295	185
VisiCorp VisiCalc (256K)	250	199
CP/M		
Ashton Tate dBASE II	700	425
Fox and Geller Quickcode	295	195
• dUTIL	99	59
FYI Superfile	195	129
ISM Mathemagic	99	72
MicroPro Wordstar	495	242
• Mailmerge	250	127
• Spellstar	250	127
• All three	845	422
Perfect Software		
Perfect Writer	489	189
• Perfect Speller	295	119

MORE CP/M®, APPLE®, IBM PC®, UNIX™, UCSD p-System™ software, hardware, etc: send $2.00 (refundable) for catalog.

TERMS: All prices subject to change without notice and availability. Cashier's check/MO. Allow time for company or personal checks to clear. VISA/MASTERCARD + 3%. CA residents add sales tax. Orders under $500 add $5 UPS. UPS Blue Label + $5.

WE'LL MATCH ANY ADVERTISED PRICE

Programming International will match any current nationally advertised price

Orders over $200, outside California, deduct $3 for phone call.

THE PHONE CALL'S ON US
24 HOUR ORDER LINE
(415) 494-2516

PROGRAMMING INTERNATIONAL
3333 Bowers Ave. • Suite 130
Santa Clara, CA 95054

Software

EIGHT BITS IN A BYTE

OFFERS *FREE* TO EVERY 100TH CUSTOMER TWENTY-FIVE DOLLARS IN MERCHANDISE DURING OUR GRAND OPENING.

Apple Software

Multiplan	199.00
Visicalc	179.00
Choplifter	28.00
Personal Filing System	89.00
Wizardry	39.00
Screen Writer II	90.00
Home Accountant	55.00
The Arcade Machine	35.00
Knight of Diamonds	28.00
Visitrend/Visiplot	229.00
Visifile	189.00
Cannonball Blitz	28.00
PFS: Report	74.00
Star Blazer	27.00
Super Text 40-86-70	88.00
PFS: Graph	89.00
Seafox	27.00
Castle Wolfenstein	25.00

We carry softwara for IBM, VIC-20, Atari, Tex. Inst. Please call or write for complete listing.

Hardware Specials

Kensington System Saver	75.00
NEC 8023 Dot Matrix w/Int.	569.00
Rana Elite I Disk Drive	329.00
Rana Elite I Disk Drive w/cont.	429.00
Brother Letter Qual. w/Int.	849.00
Microsoft 16K Ramcard	79.00
Microsoft Softcard w/CP/M	249.00
Hayes Micromodem II	285.00
NEC 12 Inch Hi-Res Green	175.00
USI 12 Inch Amber	175.00
TG Joystick	49.00
TG Gamepaddles	28.00

Send check or money order to:

EIGHT BITS IN A BYTE
P.O. BOX 235
CARTHAGE, NC 28327
or call
(919) 947-5666

Mon. thru Fri. 9 A.M.-7 P.M. EST
Orders credited $1.00 for call
No shipping charges. Visa/Mastercard and COD's accepted. Allow 2 weeks clearance for personal checks. N.C. residents add 4% sales tax.

Hardware

Secondary WANG Brokers
DP & WP Equipment Available Immediately.
Certified by WANG for maintenance.
"THE WANG LIST" mailed monthly.
ICA
(404) 953-6266

Hardware

CROMEMCO

Cromemco System 3, including CRT terminal, CP/M, 64K, 2, 8 inch floppies (2 megabyte), Cromemco (NEC) Daisywheel printer. Wordstar, mail-merge, Fortran, at. $395.00/month. Full maintenance agreement. $220.00/month.

(408) 291-4648 50-H-02

CORVUS CONCEPT
W/DISKETTE DRIVE
USED 30 HOURS
IDEAL FOR EXPANDING EXISTING NETWORK
TOM HUNTING
203-549-7636/249-0499

LOWEST PRICES

NOW Computers, Terminals, Monitors, Modems & Printers

• Compupro-New Systems	$CALL$
• Televideo Terminals	$CALL$
• Taxan Monitors	$CALL$
• Hayes Modems	$CALL$
• Epsons	$CALL$
• C.Itoh's Prowriter 8510AP	$458.00
• NEC Spinwriters 3510	$1458.00
• Olympia Typewriter/Printers	$1099.00
• PMC DMP-85	$451.00
• Smith Corona TP-1	$835.00
• Star Micronics Gemini 10	$CALL$
• For any other hardware	$CALL$

Call or Write today.

WCB
1600 Hobble Lane
Santa Rosa, CA 95401
(707) 544-5304
VISA MASTERCARD

INTERTEC COMPUTERS

SUPERBRAIN 11

JR.	$1,945
QD	$2,295
SD	$2,790

COMPUSTAR

MOD 10	$1,590
MOD 20	$2,390
MOD 30	$2,790
MOD 40	$3,190

MICRO SERVICE CO.
CHINO, CA
714 597 6954

ON SITE SERVICE IN SOUTHERN CALIFORNIA

Hardware

Cables
EIA RS 232-C
Quality cables with immediate delivery and low prices

Conductor	Price
1-4	$11.50 + 15/ft
5-7	12.00 + 25/ft
8-12	13.00 + 30/ft
13-18	14.00 + 40/ft
17-25	16.00 + 50/ft

Specify Male or female connectors, length of cable and pins to be connected. OEM & quantity discounts available to qualified customers.

We also supply DEC, IBM Compatible and Centronics Cables. Connector parts and cable in bulk.

Communication Cable Company
319 Louella Ave Wayne, PA 19087
215-964-9404

Accessories

OSBORNE WEATHERPROOF CARRYING CASE

Waterproof, washable, fullcover protection for your Osborne-1. 3 large pockets for manual, modem, & misc. Double YKK zipper. Acrylic 'backpack' type fabric. Blue, Brown, Beige, Black. $60. Warranty. Westwind, 484 Lake Park Ave., #141, Oakland, CA 94610. (415) 839-7169. 50-Acc-01

COMPUTER CHRISTMAS GIFTS
T-shirts, coffee mugs, bumper stickers, brass key rings & more. Call or write for free brochure.
Carol Cramer
P.O. BOX 754-I
Bonita, CA 92002
(714) 476-2266 43-ACC-01

IBM PC KEYBOARD TEMPLATE!

PC-DocuMate™ is an innovative template for the IBM PC keyboard. One side provides complete command and format reference for DOS, EDLIN & DEBUG & has guidance for control & function key use. Reverse side documents over 100 BASIC statements & functions. ONLY $10.00 postpaid. NO RISK 10-day MONEYBACK GUARANTEE. VISA/MC accepted. Send cash, check, or money order to:

SYSTEMS MANAGEMENT ASSOC.
DEPT. A-2
P.O. Box 20025
Raleigh, NC 27619
(919) 787-7703 (8am-9pm EST)

Supplies

INTRODUCING
CONTINUOUS CLEAN-EDGE
LETTERHEADS

From EG Communications

The following prices are based on camera ready art and include any one of our *SEVEN* standard colors.
• Black • Dark Blue • Green • Brown
• Light Blue • Red • Orange
20# 25% RAG CONTENT • WHITE, GREY, IVORY

1M	1½M	2½M	3M	4M	5M
$180	$210	$295	$324	$390	$455

BLANK STOCK #39/M 20# 25% RAG CONTENT
BLANK STOCK #21/M 20# REGISTERED BOND

STOCK COMPUTER PAPER

	Mini-Pak	Carton
• 14-7/8 X 11 Green Bar or White 18 lb	$22.50 (1400 Sheets)	$35.00 (2800 Sheets)
• 9½ X 11 White 18 lb	$19.50 (300 Sheets)	$27.00 (2800 Sheets)
• 9½ x 11 Std. 3-Ring Punch 20 lb	$21.50	$34.00

WE ACCEPT VISA, MASTERCARD, CHECKS

Add $5.00 Per Carton for standard UPS shipping and handling on West Coast orders, $8.00 on East Coast.

To order, call or mail to
EG COMMUNICATIONS
P.O. Box 34, Walnut Creek, CA 94597 (415) 943-7239

INTRODUCING:
DISKWIK
A Diskette Organizer

- Organizes diskettes vertically.
- Displays titles at a glance.
- Provides quick/easy access.
- Protects diskettes.
- Stores 5" or 8" diskettes.
- Mounts on wall or sits on desk.
- Each DISKWIK holds 10 diskettes.
- Three DISKWIKS per package.

ONLY $9.95
Add $2.00 Postage and Handling. Wash. Residents add 5.6% Sales Tax

Send check or money order to:
DISKWIK
P.O. Box 38
Lake Stevens, Wash.
98258-0039
M.O.'s Assure Prompt Shipment
Dealer Inquiries Welcome
(206) 334-5454
Excellent gift for diskette users.
Satisfaction guaranteed or your money back.
GET ORGANIZED! GET DISKWIK!

Recruit from major computer centers nationwide. List in Positions Available!

Hardware

EVERYTHING
DI$$$$$COUNTED

IBM PC Keybrd Ext Cable, 100% Compat w/IBM, 1 Yr Wrnty, Coiled, 8 ft	$29
COEX 80 FT, Epson like Printer	$349
EPSON HX-20 Computer	$699
TANDON DS/DD (360K)	$249
PROWRITER 10"/15"	$CALL
USI Monitor: AMBER	$149
DATA DRIVE for Apple	$279
KAYPRO II Complete System	$1,699
IBM PC Most Configurations	$CALL
AMDEK COLOR I	$299
Zenith 12" Green Monitor	$99
HOME ACCOUNTANT	$69
VisiCalc 3.3 OR 256	$199
Memory, Boards or chips	$CALL
Phone Orders	Mon-Sat: 10am-6pm

WE SHIP ANYWHERE
(213) 888-0030

Happy Holidays

CORVUS/APPLE II
TRANSPORTERS
Standalone and Omninet
20% OFF
$400
MIKE LYNCH (212) 490-0077
50-H-01

FOR SALE
Dynabyte Z80 - 48K computer w/double density 8" drives
Hazeltine 1500 CRT
TI 810 Printer
Complete system only $4995.00
Call Jim Sadlier (213) 410-9466

GENUINE Qume BRAND

RIBBONS			
80009-02	Multistrike I	SPRINT 3 & 5	3.75 ea
80029-02	FABRIC		3.75 ea
	Multistrike III		
83991-01	Quickload	SPRINT 3 & 5	5.00 ea
83100-01	Multistrike IV	SPRINT 7 & 9	8.00 ea
83144-01	FABRIC IV		8.00 ea
Printwheels			6.25 ea
WPS style			7.00 ea

Quantity & Dealer pricing. FREE SHIPPING AVAILABLE on prepaid orders.

Full range of "BRAND NAME" supplies at reasonable prices. Call for more info.

BONANZA
COMPUTER SUPPLIES CORP
478 MCGLINCY AVE
CAMPBELL, CA 95008
(408) 377-5611

WE BEAT ANY PRICE
MOST PRINTERS AT DEALER COST + 10%

EXAMPLES

Epson MX80FT111 } & Graftrax +	489
Epson MX100FT111 }	669
Brother Daisy HR-1A (PAR)	799
NEC 8023 DOT MATRIX	469
OKIDATA 82A	445
IDS MICROPRISM	569
MANY MORE	$CALL FOR PRICE
GRAPPLER + CARD (with any printer)	139
(without printer)	149

HARDWARE

Rana Elite I Drive	~~$329~~ Now 299
with controller	~~$399~~ Now 379
CPS Multifunction Card	159
Microsoft Premium Pack	~~$479~~ Now 439
Modems – Supersale	$CALL

SOFTWARE & FIRMWARE UP TO 40% OFF

How to order: Call number below or send cashiers check & M.O. Personal checks take 2 weeks to clear. Mastercard/Visa add 3%. Calif. res. add 6% tax. C.O.D. o.k. Add $5.00 for UPS surface & insurance.

MONEY BACK OFFER. IF NOT SHIPPED IN 5 DAYS!

Above prices discounted for cash. Some items in limited supply. Prices subject to change.
Credit Card Phone Orders Accepted
OPEN 7 DAYS – CALL NOW

DISCOUNT MICROWARE
808 N GENESEE AVE
LOS ANGELES, CA 90046
(213) 658 7585

Publications

Publications

MICRO MOONLIGHTER NEWSLETTER

The ONLY publication devoted exclusively to helping you create, build, and maintain a home-based business using your micro-system. SUBSCRIBE NOW to what may be the most important publication in YOUR FUTURE!

1 Year (12 issues) only $25 U.S., $29 Canada, $35 World Wide

J. Norman Goode, Publisher
Micro Moonlighter Newsletter
2115-W Bernard Avenue • Nashville, TN 37212

Visa and Mastercard welcome. Send account number and expiration date.

LOOKING FOR A GOOD USED MICRO? Find it in InfoWorld Classifieds.

Miscellaneous

Scientific environmental control room. 10 × 20 ×10 with appliances and controls. New cost, $28,000. Sell, $6000. (415) 534-1203.
50-Mis-01

Advertisers' Index

ABT Microcomputer Software 14
Adolph Gasser 59
Alpha Byte 19
Anderson-Bell 18
Applied Software Technology 29
Ashton Tate ..... 26 & 27
Aspen Software 61
Bunker Ramo 63
Central Point Software 32
Classifieds 64-67
Colorverter 16
Computech Group 63
Computer Exchange ..... 6 & 9
Computer Resale Company 59
Computers Wholesale 61
Computerid Printing 61
Computerunles 16
Corona Data Systems 28
CPU Shop 37
Dark Star 13
Diamond Software 60
Digital Marketing 2
Durham Software 62
800 Software 7
Ellis Computing 13
Emerinus Software 52
Epson ..... 42 & 43
Executive Data Systems 54
E-Z Tax 33
Franklin Computer Corp 41
Frobco 38
Funk Software Inc 21
Glen S. Mason 45
H B Enterprises 56
Human Soft C3
InfoWorld 55
ISO World 53
ITM 36
Kaltronics Distributing 56
Key Microsystems 44
Leading Edge C4
Lexisoft 3
Link Systems 61
Logitech 38
Metasoft 60
Micro-Ap Inc 15
Micro House ..... 34 & 35
Micro Pro ..... 24 & 25
Midnight Software 45
Mini-Micro Mart 32
Morrow Designs 22
Northeast Expositions 17
Osborne Computer Corp 40
Pesonna 14
Printer Port, The 59
Programming International 4
Quark Engineering 6
Quick Brown Fox 30
Rapid Access Marketplace 48-50
Real World 58
Reprint Ad 61
Select Info 5
Silicon Valley C2
SoFsearch International 10
SoftwareBanc 6,11,36,52,55,57,58,60,62
SoftwareBanc Seminars 57
Software Dimensions 20
Software Store 10,13,21,23
Software Wholesalers 12
Solidus International 54
Standard Software 11
Stoneware 42
Sunwest Store 51,53
Taosoft 21
Taurus Software 23
Third Wave 39
Westico 44
Winterhalter & Associates 62
Your Business Software 60
Zhivago Advertising 58

This index is provided as an additional service. The publisher does not assume any liability for errors or omissions.

Place your ad today in InfoWorld's Classified section!

Face-to-face with a purple archaeologist

By Michael Swaine, IW Staff

"That's not Elmo S. Loons," Casey Standard said, referring to the tall, trenchcoat-wrapped figure who had stepped out of the jungle to point a gun at Casey and her boss, Mr. Usasi. This, she thought, was worse than tarantulas.

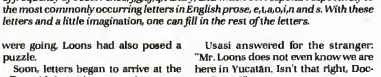
Tarantulas, in fact, had not been the worst of their trip, not even discounting the present gun-toter. It had all begun, she recalled, months ago, at a lecture on Mayan writing in a bookstore in Palo Alto, California. Rhonda Forris, the well-known Mayan scholar and archaeologist, had posed an unsolved problem in Mayan mathematics, and Mr. Usasi had solved it, impressing both Forris and a cigar-puffing man named Elmo S. Loons, who worked for an East Coast magazine and made a hobby of the study of Mayan literature. As Usasi and Casey El Chichón the previous spring, they had set off into the jungle and swamp land of darkest Yucatán.

Attacked by insects, their food going faster than Casey had expected and barely able to follow, under the red sky, the star-based instructions their correspondent had modified from ancient documents to conform with stars that they could see, they finally reached the maze.

Usasi's puzzle skills got them through the dark stone labyrinth, with its pits and tarantulas, to the artifact—a gold tarantula—and back out to the brick-red sky and the armed intruder.

"I quite agree," Mr. Usasi said. "This is not Elmo S. Loons." The figure before them was heavily swathed in trenchcoat and hat, but it was not the amateur Mayan scholar.

"Did Loons send you here?" Casey Standard demanded.



The smeared message that led Usasi to the maze decodes to: "Walk in a westerly direction to a creek and see that it is not a deep one. Follow the stream." The visible ascenders and descenders define seven different letters, which are, in order of frequency of occurrence, f,g,i,j,q,t and y, and which correspond respectively to the most commonly occurring letters in English prose, e,t,a,o,i,n and s. With these letters and a little imagination, one can fill in the rest of the letters.

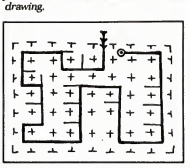
were going, Loons had also posed a puzzle.

Soon, letters began to arrive at the office with Loons' name on them, posing other puzzles, all of which Usasi solved. The point of the puzzles, their correspondent explained, was to test Usasi's puzzle-solving ability, to see if he was good enough to solve the real puzzle: a life-size stone maze, hidden for centuries in the jungles of Yucatán, reputed to be the resting place of an artifact of great value—both archaeological and monetary.

Their correspondent professed a purely scientific interest. Usasi's only interest was in having another problem to solve. Casey Standard had thought it might be fun, but now she wondered.

But they had taken up the challenge and flown, secretly, to Yucatán, following instructions in the letters. After buying supplies under the somber red umbrella of dust raised by the volcano

The path through the Yucatán maze: the artifact was located in the room adjacent to the entrance, as shown in the drawing.



the trenchcoat off her arm. "I see I don't need this disguise. It was too hot, anyway." Her face had a deep, red cast. "If you think you're insulting me by calling me a criminal, Usasi, don't. I never rise to insults. 'Prudent,' though, is apt. I am a very prudent person."

"Which explains your actually visiting Yucatán when you wrote the directions for getting through the swamp by the positions of stars. You knew that El Chichón had changed the night sky and you wanted to be sure we could see the stars you used."

Casey Standard looked at him. "So that's how you knew it wasn't Loons! He was tied up with a full-time job in New York . . ."

"And the stellar directions were too perfectly suited to the altered atmospheric conditions here. After concluding that our correspondent was not Loons, I could imagine only one other source of the letters: Rhonda Forris, who followed us here and now demands her booty."

Forris was breathing heavily and wiping sweat from her brow. "Clever, Usasi, but as you observed, I am prudent. I cannot allow you to take your knowledge out of this jungle."

Usasi looked down at his feet and asked quietly, "But who will take you to the hospital, Doctor Forris?"

"Hospital?" she blinked, shook her head as if to clear it, and wiped her forehead. Her face was vaguely purple now. "What—"

"You ate from the food packages I dropped behind, Doctor. It is, shall we say, written on your face."

The archaeologist grasped her throat and took a step back, grimacing hideously. "Poison!" she gasped.

Mr. Usasi took the gun from her hand and picked up her trenchcoat. "There is really no need for melodrama. You will be uncomfortable until you pass out, but will live if we get you to a hospital soon. Your plan, while prudent, was flawed. You see, when I saw the red sky and considered the pains you had taken with the star directions, I felt it would be prudent to play upon your own prudence—and greed. I was certain you would not allow the food to go to waste.—Shall we go, Ms. Standard?" ■

Next Time

Our last issue of 1982 features something a bit different. Next week we lay all worldly cares aside to talk for a while about the supernal world of religious software.

Microcomputers have invaded the parish, the temple, the church and the ministry. The Bible is on line and some say improved, with quizzes and computerized cross-references. Gurus and monks alike are using micros, and special software helps parishioners maintain their collection records. Celebrities such as Art Linkletter are supportive of religious software, but some traditional religious leaders worry about the increasing computerization of all aspects of our lives.

We'll have continuing coverage of the recent COMDEX show in Las Vegas.

Also next week, we'll evaluate three file-management programs for the TRS-80 computer and a text formatter for the Heath/Zenith computers called Text 4.0.

dBASE II™ Owners

DBPlus™ Will Save The Day!

Faster than a dBASE II™ SORT

Sort a data file on 32 fields, up to 15 times faster than dBASE II.™

More powerful than a MODIFY STRUCTURE

Transform any dBASE II™ data file, by adding, deleting and modifying fields without any programming knowledge. You can even transfer your data to WordStar/MailMerge.™

Able to compress huge data files with a simple command

Save up to 70% of your data transmission costs. Perfect for archival storage of important files.

Disguised as a mild-mannered dBASE II™ utility, in reality DBPlus™ heralds a new era in microcomputers. Software designed for value, quality, and use by human beings. Now at a dealer near you!

DBPlus™ *$99* Introductory price $125 after February 1, 1983

HumanSoft
661 Massachusetts Avenue
Arlington, MA 02174
(617) 641-1241

DBPlus is a registered trademark of HumanSoft, Inc.
dBASE II is a registered trademark of Ashton-Tate, Inc.

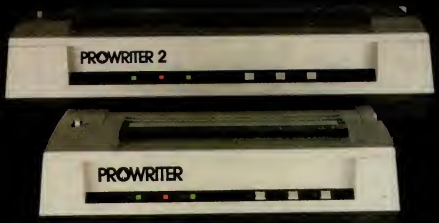
THE LEADING EDGE IN PRINTERS

ONE GREAT LINE. ONE GREAT WARRANTY.

Finally, there's one full family of printers that covers every business or word processing application—all from C. Itoh, a company known for packing more product into less price; and all distributed exclusively by Leading Edge, a company known for searching out and providing that very thing. Which means that one call to one source can get you any printer, any time you need it, for any purpose. All backed by a full years' warranty from Leading Edge. (Try *that* on any other line of printers.)

THE PRO'S.

The Prowriters: business printers—and more. The "more" is a dot-matrix process with more dots. It gives you denser, correspondence quality copy (as opposed to business quality copy, which looks like a bad job of spray-painting).
Prowriter: 120 cps. 80 columns dot matrix compressable to 136. 10" carriage. Parallel or serial interface.
Prowriter 2: Same as Prowriter, except 15" carriage allows full 136 columns in normal print mode. Parallel or serial interface.



THE STAR.

The Starwriter F-10. In short (or more precisely, in a sleek 6" high, 30-pound unit), it gives you more of just about everything—except bulk and noise—than any other printer in its price range. It's a 40 cps letter-quality daisy-wheel with a bunch of built-in functions to simplify and speed up word processing. It plugs into almost any micro on the market, serial or parallel.

THE MASTER.

The Printmaster F-10. Does all the same good stuff as the Starwriter except, at 55 cps, the Master does it faster.

Distributed Exclusively by Leading Edge Products, Inc., 225 Turnpike Street, Canton, Massachusetts 02021. Call: toll-free 1-800-343-6833; or in Massachusetts call collect (617) 828-8150. Telex 951-624.

Copyright Unpublished